The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 75, No. 13 CHICAGO, ILLINOIS SEPTEMBER 25, 1920

THE MALARIA AWAKENING OF THE SOUTH *

L. D. FRICKS, M.D.

Surgeon, United States Public Health Service

MEMPHIS, TENN.

The average practicing physician or public health official is not generally supposed to be a man of affairs, dealing in stocks and bonds, conversant with market quotations and the various phases of modern business; nor is he closely identified with the agricultural development of the country in its larger aspects. The proper selection and rotation of crops and the relative values of improved breeds of domestic animals as determined by experience and the latest live stock standards are the study of the progressive farmer. The time and the thought of the physician and the health officer are occupied in protecting and conserving the health of those who are laying the foundations and building the superstructure of our economic wealth, and thus, while contributing indirectly in no small measure to the success of modern business and farming projects, they are not an integral part of either group of these workers. For this reason it may be that some of us have not fully realized the enormous agricultural and business growth that is taking place in the South at the present time. If so, reference to the crop reports for the Southern states, to increased land values and tax assessments, and to new business enterprises incorporated will bring speedy conviction as to the reality of this flood of business prosperity which has spread over the South from Virginia to Texas, and which can be permanently checked by only one thing—malaria.

What influence will this new development of Southern land and industries have on the old, old problem of malaria? Will it help in the ultimate solution of the problem or tend merely to enlarge and complicate it?

What relation will malaria bear to the continued growth of these industries on which the future prosperity of the South depends?

Lands have been cleared before and industries started, only to stagnate or suffer abandonment, after a hopeless struggle, to the malaria-carrying mosquito. It is hardly conceivable, however, that in this instance history can repeat itself on so large a scale. We who are interested in preventive medicine have learned something, and the business interests, studying every factor that enters into the cost of production, have learned much more. We have learned in a general way how to protect individuals and communities against malaria infections, while progressive business men have figured out exactly, in dollars and cents, the cost of this disease in impaired efficiency and decreased production among their employees.

Asst. Surg.-Gen. H. R. Carter has expressed the opinion that actual malaria control demonstrations and the education of the children in the public schools are the only educational measures now being employed which are of general practical value in impressing on the individual or community the importance of malaria control as a health measure. This opinion is probably correct. Individuals and groups are notoriously slow in applying to themselves the knowledge that has been gained of preventive medicine. But industrial organizations and business concerns, looking at the subject from an entirely different angle, have been quick to see the importance of protecting the health of their employees as a business proposition solely.

They have been told that malaria, through sickness and decreased efficiency, causes a greater economic loss to the malarious sections of the South than all the other preventable diseases combined—approximately a billion dollars a year—and from study of their own payrolls and cost sheets, they have been convinced of the truth of this appalling statement. Now all they ask is, "What shall we do to prevent this constant drain on our labor efficiency, and what will it cost permanently to protect our plants and maintain their output at a normal figure?" "We want to operate in the South close to our raw materials, with its cheaper labor, surplus power and ideal working climate, but we cannot compete with similar plants in the North and continue to pay the malaria tax. We must have relief, else we stagnate or must move."

Those of us who are in a position to receive inquiries from industrial concerns regarding malaria protection have been impressed with their increasing numbers and definiteness, and their stronger insistence that relief from this burden be given to Southern industries. Chambers of commerce, railroads, industrial plants of all kinds, lumber mills and large plantations are demanding to know what method of malaria control is best suited to their location and surroundings, and which will offer them the surest protection at a reasonable cost.

This malaria awakening of Southern commercial interests from a purely business standpoint may not be prompted by what some would term the highest motives, but it is backed by shrewd business sense and offers the most immediate prospect of accomplishing malaria control on an extensive scale and permanent basis.

There are still many individuals, particularly among those who suffer most from the ravages of malaria,

* Read before the Section on Preventive Medicine and Public Health at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

who cannot be seriously impressed with the importance of this disease in relation to their own and their neighbors' health. Perhaps a generation hence a widespread appeal may be made directly on a health basis with a reasonable assurance of awakening a responsive interest, but for the present such methods are apparently wasted on the class that is most concerned.

Therefore it may be fairly questioned whether, from a standpoint of practical accomplishment, it would not be the wisest policy for health officials to convert their malaria control efforts into a purely business formula, thus:

Malaria is costing your community or plant, per year	$5,000
Malaria protection will cost you, per year	2,500
Net gain, per year	$2,500

Any progressive community or business concern can understand and will act on such a simple proposition.

If it be true, then, that a large part of the malaria problem of the South can and will be solved through agricultural development and the growth of industrial plants—both operated on strictly business principles—conserving the employees' health as a means to increased dividends, it may well be asked, what part the physician and the public health official should play in such a program. Undoubtedly a more active and important one than we have played in the past, or can hope to play by simply sermonizing on the health hazards of malaria to the general public. By familiarizing ourselves with the fundamentals of malaria control, by realizing their present limitations and, above all, by never losing sight of the fact that no community or business concern can long afford to pay more for malaria protection than it receives in return, we can insure the success of this program of malaria control based on commercial interest alone.

EXTENSION OF MALARIA CONTROL DEMONSTRATIONS

Following the successful malaria control operations of the U. S. Public Health Service in extracantonment zones during the war, and similar demonstrations conducted by the Arkansas State Board of Health, the U. S. Public Health Service and the International Health Board in certain Arkansas villages, this program of malaria control demonstrations has been extended this year to more than a hundred selected communities in eleven Southern states. These operations are being conducted under the general direction of the health departments of the different states, the U. S. Public Health Service furnishing supervision and the International Health Board financial aid. Each community has been required to provide at least 50 per cent. of the actual cost of malaria control operations, exclusive of supervision, and many of them have promptly contributed the entire amount; where this has not been done, the state department of health and the International Health Board have provided the remainder.

The selection of these communities was made by the various state health officers within their respective states, following a malaria survey of each locality. Many communities that were surveyed were not selected, either because they were unsuited for the purpose in view, or not yet ready to undertake malaria control operations on a permanent basis. In each case selection was made on practical grounds, such as high malaria incidence, feasibility of mosquito control, moderate per capita cost of initial operations and maintenance, favorable local sentiment, and future support.

These demonstration sites have been scattered throughout the malarious sections of the South with the expectation that their influence will spread and be felt over the entire region.

The business interests are watching these operations with keen attention, and the practical results obtained there will be applied around thousands of industrial plants in the South just as rapidly as competent advice and direction can be secured by them. Thus there will be established throughout the South bases of malaria control operations from which similar work, though possibly employing different methods, will be extended into the rural districts as rapidly as agricultural development and the cost of control operations will permit.

The practicing physician can enter into this program of malaria control with enthusiasm and the full assurance that he will share in the increased prosperity of the community to which he belongs. Some short-sighted physicians have felt that such antimalaria campaigns are conducted directly against them and their legitimate revenues, but this is a complete misconception of the facts. It may be that his collections will show an immediate decline; but ultimately the physician profits as his patients prosper, and whatever tends to increase their earning capacity will be reflected in the greater size and more prompt payment of his bills. The medical care of an impoverished community is always a work of charity, but the same community when freed from its malaria burden can well afford to pay for a more generous medical service than it has ever known.

The physician can aid in this program by the exercise of greater care in the diagnosis of malaria cases. It is notorious that the diagnosis of malaria in malarious regions is not made with the same precision that is expected in other diseases. Perhaps there are many reasons for this laxity, this anomaly as applied to malaria diagnoses—custom, convenience and popularity all point the way to a diagnosis of malaria in most febrile cases occurring in malarial regions. And when it is considered that in communities where malaria is prevalent, malaria must always be excluded, and that quinin dosage is the time-honored method employed for this purpose, it can readily be understood how the attending physician is practically forced into making a tentative diagnosis of malaria, which, although incorrect, need never be brought into question. It seems hardly fair to criticize the general practitioner too severely in this matter; but he certainly should employ all modern methods in establishing a diagnosis in doubtful cases and perhaps should display more readiness to correct one not justified by the course of the disease or its failure to respond to quinin medication. The physician who is unwilling to do these things is not fair to himself, to his patient, or to the community in which he lives.

The physician can aid in this program by exercising more care in the reporting of malaria cases to the proper health authorities. From a public health standpoint the reporting of all malaria cases is not so important, perhaps, as the reporting of typhoid and the eruptive febrile diseases, because malaria is an endemic disease and because we are at present powerless to control the movements of the most dangerous malaria carrier. If, however, we are entering on an extensive malaria control campaign throughout the South, as we believe to be the case, it is necessary that we know the

extent of the malaria problem in different localities in order that there may be no wasted effort and that a proper measure of results obtained may be secured. In no Southern state, except Mississippi, is malaria at present reported with sufficient exactness to enable us to do more than estimate these figures.

Perhaps the greatest assistance which the physician can give to this program of malaria control is in the adequate treatment of patients coming under his care. It has been found that the quantity of quinin necessary to control active malaria symptoms, and the duration of treatment usually given such cases, are entirely inadequate to prevent the development of sexually mature malaria organisms in the patient, and future relapses of the disease. Untreated and imperfectly cured patients usually become malaria carriers, the reservoir from which all future infections spring.

STANDARD TREATMENT FOR MALARIA

Following extensive investigations of Dr. C. C. Bass in the treatment of malaria in Bolivar and Sunflower counties, Mississippi, the National Malaria Committee has formulated a standard treatment for malaria:

For the acute attack, 10 grains of quinin sulphate by mouth three times a day for a period of at least three or four days, to be followed by 10 grains every night before retiring for a period of eight weeks. For infected persons not having acute symptoms at the time, only the eight weeks' treatment is required.

The proportionate doses for children are: Under 1 year, one-half grain; 1 year, 1 grain; 2 years, 2 grains; 3 and 4 years, 3 grains; 5, 6 and 7 years, 4 grains; 8, 9 and 10 years, 6 grains; 11, 12, 13 and 14 years, 8 grains; 15 years or older, 10 grains.

The committee does not claim that this is a perfect treatment, or even the best under all circumstances, but it does believe that in the great majority of cases this treatment will prevent relapses and the development of malaria carriers.

This standard treatment should be approved by the American Medical Association and by every state and county medical society in the South, and every practicing physician should follow it as nearly as practicable, using all means in his power to impress on his patients the importance of thorough continued treatment after the disappearance of active malaria symptoms.

DUTIES OF THE HEALTH OFFICER

What should the public health officer do to further malaria control measures undertaken by commercial interests? He should stand ready at all times to furnish competent advice concerning the extent of the malaria problem under consideration—the feasibility of its control—and the method or methods best suited for this purpose. These efforts at malaria control, although financed by private business concerns, will result in general public good; therefore they are entitled to receive from the public health officer such support as may be needed to insure their success. Not only this, but some protection should be afforded them from surrounding communities that are unwilling to finance malaria control operations for their own benefit.

The health officers of the Southern states should undertake to secure such legislation as may be necessary to prevent the increase of malaria, resulting from agricultural and industrial development—"man-made malaria," as Dr. Carter calls it—particularly in relation to (1) drainage projects, (2) highways construction, (3) new construction of railroads, and (4) impounded waters. The state health officer should be given proper legal authority to advise in the planning of these new projects so far as they may affect malaria prevalence. And where such undertakings will greatly increase the prevalence of malaria, the health authorities should have the power to prevent their construction.

The state and local health authorities should use every effort to secure the enactment and enforcement of an ordinance directed against the propagation of mosquitoes in those cities and incorporated towns that lie within the malarious districts of the state. The enforcement of such an ordinance in communities adjacent to those industrial plants which have already undertaken malaria control will add strength and completeness to their work.

In every state in which malaria is a serious sanitary problem, there should be created in the state health department a malaria division for the compilation of malaria statistics and the direction of malaria-control measures. Too many vague estimates of malaria losses and too few accurate figures have been given to the public in the past. Among its other duties, the malaria division should collect and distribute correct information concerning the yearly losses due to malaria for each county in the state. One of the prime duties of the state health department should be to secure the reporting of malaria cases as successfully as has been accomplished with other communicable diseases. The difficulties in accomplishing this end are appreciated; but if report blanks are prepared in the simplest form in the beginning, it can be done.

This program of malaria control, through the awakening of business interests, does not require an extensive educational campaign in order to insure its success: the results accomplished around each industrial plant will speak for themselves. But the public should be kept informed through the local press of the progress being made and the results obtained in each operation.

One would hardly dare to prophesy the extent to which this movement for malaria protection to Southern industries will affect the malaria problem of the South as a whole; but with thousands of industrial concerns and the communities surrounding them (representing one fourth of the population of the South) under proper malaria control, it is not too much to hope that the direct effect will be appreciable, and that indirectly it may lead to the removal of this handicap to Southern prosperity from all except the most remote settlements.

ABSTRACT OF DISCUSSION

DR. GRAHAM E. HENSON, Jacksonville, Fla.: Considering malaria as a national health problem, we might ask ourselves why the disease is endemic in all areas of the world having a suitable topography for the mosquito. For several hundred years we have been in possession of a specific that will not only control and cure the disease, but will even prevent the formation of the sexual forms in the human host. We know that after the sporozoites are introduced into the human host by the mosquito, asexual reproduction goes on for a more or less indefinite time, depending on the resistance of the patient, treatment and other factors. We know that if we properly attack the parasite in the human host at any time during this period, the sexual forms will never form in the human host, for while evolution goes on and the merozoites, the product of succeeding sporulations, multiply with each succeeding sporulation, the sexual forms will never develop if the specific is properly applied in proper dosage for a sufficient time. The answer to my question is that we are not properly

applying the specific. This should not in any way interfere with the eradication of the mosquito where it is feasible to control and eradicate this insect. But our work should be more confined to the treatment of the infections in their incipiency in the human host, especially in those areas where it is not possible to eradicate or control the mosquito.

Dr. A. C. Chace, Texarkana, Ark.: The St. Louis Southwestern Railway was one of the first industrial concerns to take up the control of malaria as an economic problem. The cost of having malaria was greater than the cost of undertaking the control of the disease. We have a centrally located hospital, and we have determined that there has been a reduction of about 70 per cent. in malaria cases treated in that hospital. In the towns through which this railroad goes, from St. Louis down to Texas, interest was stimulated among the merchants and others and in that way we contributed to the welfare of our communities as well as to the welfare of the industries concerned. What was the cost of getting rid of malaria? We determined that approximately 30 cents per capita, under some conditions, will get rid of malaria. That expenditure will not get rid of the mosquitoes, but it will reduce the anopheles to such an extent that malaria will not become an economic problem. This work is done in the three ways mentioned by Dr. Fricks: by drainage, by quinin and by eliminating the carrier. We have a standardized treatment very similar to that which Dr. Fricks has given, except that we use another salt which is more soluble, and we mix with the quinin some powdered ginger root to increase absorption. The result has been that these cases have been almost negligible among our employees since this plan has been put in operation.

Dr. C. C. Bass, New Orleans: I wish to endorse and emphasize one particular phase of Dr. Fricks' paper. Numerous demonstrations have been made throughout the world, and recently a great many have been made throughout the United States, showing that it is possible, and it is economical, to control malaria by mosquito control. These demonstrations, however, have been in comparatively limited areas, and have usually been in towns and villages. Most of the malaria in this country is in the rural districts; as a matter of fact, the malaria problem is largely a rural and not an urban problem. Whether it will be practical to employ the same methods of mosquito control, and thereby control malaria in rural sections, remains to be demonstrated. However, if such a plan is feasible and successful, in all probability it will be many years before a great deal of territory can be covered, and before the big malaria problem can be affected very greatly. Enormous sums of money must be expended. It is not necessary to wait until we work out and develop machinery by which we can control mosquitoes and thereby control malaria in this rural part of the country; it is possible to control it by disinfecting the malaria carrier by the standard treatment Dr. Fricks mentioned. In the particular locality with which I am most familiar it has been found that approximately from 20 to 25 per cent. of the malaria is treated by the physicians in the locality. If these physicians would cure or disinfect their patients, from 20 to 25 per cent. of the malaria would be controlled at once. The National Malaria Committee has endorsed a standard method of treatment which they hope the physicians of the South will adopt. There is considerable evidence that this standard treatment is being adopted rapidly and usually with great satisfaction. If I read the signs of the times aright, the near future holds out the promise of a considerable decline in the prevalence of malaria over this whole country, regardless of any antimosquito or sanitary measures that we may carry out. The standard method of treatment is not necessarily the best method of treatment, and it is surely not the only method that may disinfect the patient, but it is a method that will disinfect the patient with reasonable certainty, which is more than can be said for the treatment employed by many physicians at the present time. One idea that was suggested is, I think, slightly erroneous. It is with reference to the value of the history of attacks in finding the malaria carriers in a community. Our experience in comparing the blood findings with the history in 31,459 persons examined showed that only 55 per cent. of those whose blood contained parasites gave positive histories. Forty-five per cent. of those whose blood contained parasites gave negative histories as to attacks during the previous twelve months. I believe, however, that in the absence of facilities for this examination, history is useful, and it will find the majority of the infected persons, but it falls very far short of finding all.

Dr. W. S. Leathers, University, Miss.: Malaria in our state constitutes a considerable public health problem. I have watched with a great deal of interest the various demonstrations which have been made and are being made in the control of malaria by the International Health Board and the U. S. Public Health Service. I feel certain that no one questions that malaria cannot be controlled by the extermination of the mosquito, or by the sterilization of the blood of one who is infected with malaria. I think it is conceded that we have ample information for use in the control and ultimate suppression of this disease. The foremost question at this time is: What is the most economical plan that can be used in the control of malaria from the standpoint of a county or state? The conditions which face the public health official in dealing with this disease in a public health way in a town or city and in the country are manifestly different. It is often not possible to emphasize one method in fighting malaria exclusive of other methods. For instance, it may be advisable to use all methods in a city, especially the extermination of the mosquito, while, on the other hand, there are certain rural districts where it may be advisable to emphasize the sterilization of the blood of infected persons. In advising the people of the county or state relative to the control of this disease, I am coming more and more to the point of view that we must adopt a broad program. We must not lose sight of the fact that advocating drainage is of tremendous importance not only in the control of malaria, but also in the agricultural development of the state. It would also seem advisable to emphasize constantly the importance of screening the homes for the reason that it not only serves to check the spread of malaria, but it will be of much value in the control of typhoid and other diseases of this group. In a word, these things make for comfort as well as the control of disease, and therefore we cannot afford to minimize the importance of drainage and screening. So that it appears to me that we are forced to this conclusion: that if malaria is to be eradicated in a county, the area should first be studied carefully, a survey made, the problem analyzed in a practical way and then a plan worked out which will as nearly as possible get the variations of population and local conditions essential to the control and suppression of this disease. This will be a means of attacking the disease from every possible angle, which is necessary in dealing with this difficult problem. A great deal may be done in controlling malaria by intensive educational methods. This has not been done to the extent necessary. The people are not acquainted, generally speaking, with some of the simple facts relative to this disease, or at least their acquaintance with such facts is not of such a character as to cause them to act or to apply the principles involved. The people are receptive at this time and if such information is presented to them properly, I believe that far-reaching effects will be achieved. The use of quinin in the sterilization of infected people is certainly a most valuable method. In many rural districts it is the only method that can be applied with economy. It is very necessary, however, to supply quinin to the people at cost, by having quinin stations, because in this way they are more likely to buy it and this will also probably contribute to its use. To this end, the county may be placarded and other methods used to impress the people with the importance of taking quinin in the right way when they contract this disease. Extensive demonstrations in the control of malaria have been conducted under the auspices of the Mississippi State Board of Health in Bolivar and Sunflower counties. This work has been under the scientific direction of Dr. C. C. Bass and the final report relative to the plan of operation and the results obtained will be most helpful in future public health work in the control of malaria.

Dr. J. W. Schereschewsky, Washington, D. C.: There is one thing to remember about the quinin control of malaria,

and that is the question of the limit of the supply of quinin. I doubt very much that it would be possible to apply it as the only measure, for the simple reason that I do not believe there is enough quinin to do it. The supply of quinin—quinin being a natural product—is strictly limited. Of course, it is quite possible that a substitute for quinin may be discovered. And it is highly desirable, if intensive campaigns are to be carried on, that we have a substitute for quinin. There are some features about quinin which could be improved. Then we find, as Dr. Leathers pointed out, that drainage operations, by removing malaria, will not only result in a betterment, an improvement in the health of the people, but it will add much to the material prosperity of the country by the addition of these drained lands. For instance, in certain rural sections where the chief sources of malaria are swamps, it is evident that by the drainage of those swamps we will add some extremely fertile land to the tillable land of the country, because all swamps are alluvial land, and the placing of this rich virgin land under cultivation will add to the resources of the country.

DR. JOHN A. FERRELL, New York: Dr. Fricks has indicated that the demonstrations of malaria control are being conducted in selected towns in practically all of the Southern states. I have the estimates of the cost of this work for six of the states. Thirty-five towns are included, having an aggregate population of 155,500. The estimated average per capita cost for antimosquito measures is $1.05. Of this amount the towns have contributed 63 cents; the states, 18 cents; and the International Health Board, 24 cents. Cooperative budgets for the selected towns in the other states have not yet been adopted, but the cost in them will not, I think, vary greatly from the figures quoted.

DR. JOHN P. DAVIN, New York: Last year when Dr. Guiteras, the national health officer of the Republic of Cuba, discussed this subject, he gave it as his opinion that the control of malaria in Cuba had been solved, as far as he could solve it, by the distribution of quinin to the exclusion of drainage and other methods. That was the only practical method they could employ. Dr. Guiteras seemed to be perfectly satisfied with that measure for the eradication of malaria, independent of measures employed for other purposes. It seems to me that the solution of the problem lies in the rational prescribing of quinin by physicians under the conditions laid down by the National Malaria Committee. As to the question of cost: the average individual today ought to be well able to pay the cost of a course of quinin treatment, for people are earning money in amounts that they never got before. The solution of the whole problem rests on the intelligent understanding of this question by the ordinary physician. Dr. Guiteras gave it as his opinion that the problem was practically solved in Cuba by the distribution of quinin to those who could not buy it themselves.

DR. LUNSFORD D. FRICKS, Memphis, Tenn.: The point I was attempting to bring out was that here is a method that is available. The business interests of the South are willing to undertake this control work themselves, and all that is necessary for the health authorities and the people who are interested to do is to give it support, and in that way we will certainly accomplish a great amount of good. The men who have given the problem of malaria control much thought are well aware that it is not a simple proposition. So many factors are connected with it, and there are so many ramifications that it is an extremely difficult proposition to effect complete malaria control over the entire South. There is no use saying that it is simple; that it is an easy thing to accomplish, because it is not. And for that reason it seems to me highly advisable, in fact, necessary, that we, as health officials, and as men interested in the health of the South, should take advantage of every possible means, particularly those that are practically self-supporting, such as extensive industrial interests, in enabling us to carry on this malaria control campaign. I certainly had no idea of suggesting that the state officials, who have the responsibility for the health of their states on their shoulders, should exclude any other method, such as a campaign of education, or whatever it might be. But I do believe that they should give considerable thought to the best means by which they can support the demand of the industries of the South for malaria protection and the control of malaria mosquitoes. And I am sure that from those areas in which we have shown that malaria and the mosquito can be controlled, there will spread out all over the South a wider general sentiment for malaria control.

OCULAR SYMPTOMS IN EXOPHTHALMIC GOITER *

J. H. CLAIBORNE, M.D.
NEW YORK

My object in this paper is to set forth before the members of this section in array the signs present in exophthalmic goiter; to give what appears to be a simple, obvious and reasonable explanation of the great majority of them; to remove a certain amount of confusion which I think exists generally, and to describe what appear to be several signs which have not been heretofore remarked. There is no disease in medicine wherein so many men's names have been attached to signs as in this. The underlying cause of this, I believe, is the sense of scientific justice which is inherent in us all, whereby we are willing to bestow merited immortality on those who have benefited the human race; but the exploitation of this impulse has been carried in many respects beyond the limits of reason, particularly in this disease.

The first sign, and that on which all the others practically depend as a logical sequence, is the protrusion of the eyeball forward, known as exophthalmos, or proptosis. Singularly enough, no one has attached his name, nor has any one caused to be attached any one else's name to this sign. Its cause is generally recognized as an excessive amount of blood in the vessels behind the ball lying in the orbit, particularly the veins, and an increase in the amount of orbital fat. To this may be added reasonably some degree of hyperplasia of all structures in the orbit, as the result of long-continued congestion. As stated, exophthalmos is the first and basal sign of this disease; and all the rest, with a few exceptions, follow that for mechanical reasons. My main object is to set forth this idea. I shall discuss the signs in order.

THE DALRYMPLE SIGN

The first sign, which follows logically on the exophthalmos, is that known as Dalrymple's sign. In conditions of health, when the eye looks straight to the front in the horizontal plane, the upper lid touches the cornea or covers a small portion of it, and the lower lid likewise is in contact with the cornea. In the Dalrymple sign there is a separation of the lids, so that the fissure is greater than in health. This causes a band of sclera to be seen between the upper lid and the edge of the cornea, and the lower lid and the edge of the cornea. In the majority of cases, the band is visible both above and below. Sometimes it is visible only below. I hold that this sign is due to the protrusion of the eyeball forward. It gives very largely the look of fright, dismay and even horror in exaggerated cases, which is characteristic of the disease. Let it be remarked, without misunderstanding, that

* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

this sign exists both when the eyes are in motion and at rest, but it should be described from the standpoint of rest. There are those who have gone far afield to seek the cause of this appearance, when the real cause lies close at hand. Some hold that the unstriated fibers of Müller's muscle are excited through the sympathetic system, which is in a more or less pronounced condition of excitement in this disease. The muscle of Müller is found in both upper and lower lids.

I believe it is a logical sequence that this sign should exist in exophthalmic goiter and in direct proportion to the exophthalmos. The upper lid is apparently retracted because the eyeball is pushed so far forward it passes the limit of the action of the upper lid, and the sclera shows below because the eyeball is pushed beyond the limit of the action of the lower lid. By this protrusion the muscles of both the upper and lower lids are stretched laterally, and the fibers are crowded on each other from before backward. This impedes freedom of motion.

Sharkey thinks that this sign, and the other two to be mentioned presently, are due to loss of power in the orbicularis rather than in the action of the levator. He is, I believe, to some extent correct, but I think he fails to attribute the loss to the right cause. He does not mention the protrusion of the eye and the pressure resulting therefrom.

There are other conditions which may produce a widening of the palpebral slit. This phenomenon is seen in excessive fright—staring of the eyes in horror. I believe the cause here is also mainly the one herein set forth. The heart action is exaggerated in fright; there is a natural congestion of the head; the eyes bulge; and the strained condition of all the muscles in the head readily adds to the venous congestion behind the eyeball. At the same time, it is not unthinkable that the fibers of Müller in both lids may be affected by reason of excessive stimulation of the sympathetic system, and so a combination of the two produces the picture.

I have seen the Dalrymple sign in a case of violent apoplexy which developed under my eyes within two hours, and which terminated in complete coma. During the convulsions the face became purple and the eyes bulged from their sockets, showing this sign both above and below the cornea. In this case, likewise, the congestion of the vessels behind the ball with irritation of the sympathetic system could alone be assigned as the cause. Shakespeare evidently observed this sign, for he puts into the mouth of Henry V, in his address to his troops, these words: "Let the eye pry through its portals like a brass cannon."

Orbital tumor produces this sign, and it is marked in proportion to the degree of proptosis. I have noticed in one case of orbital tumor that the scleral band was greater below than above, though proptosis appeared to be directly in the horizontal plane. Cocain, after repeated injections into the sac, is known to increase the size of the palpebral slit. I have never seen the Dalrymple sign marked after the use of cocain, except in cases of so-called "pop-eyes"—a condition in which the eyes lie shallow in the orbit, whether by reason of the size of the ball, shallowness of the orbit, or an excess of orbital fat.

Hysteria following childbirth is said to produce this effect, and I think it can be explained also on the theory of the congestion of the orbital vessels due to preceding efforts of expulsion of the child, together with irritation of the sympathetic system. It is said to exist in lockjaw by reason of a spasm of the occipitofrontalis muscle occurring in that disease. I have not seen this.

In amaurosis, the Dalrymple sign sometimes is seen, and again I have remarked that it is more obvious below than above. The most dramatic picture of the Dalrymple sign I have ever seen was in a case of macrophthalmos; in this case the eye bulged so far forward the lids barely reached the equator. In attempting to manipulate the eye, I caused the patient to jerk backward, when the lids retracted from the eyeball entirely. The patient stated that this happened to him at times, but by an effort with his fingers he could replace it. It was the most striking picture I have ever seen.

All these facts are consistent with the theory that proptosis is caused mainly by congestion of the vessels behind the ball, but with other factors also, and that the Dalrymple sign follows naturally on the protrusion of the ball, in direct proportion to the amount of the protrusion.

THE GRAEFE SIGN

The Graefe sign is usually described by writers before that of Dalrymple; but this is illogical, since the Graefe sign is the inevitable consequence of the existence of the Dalrymple, even as the latter is the necessary sequence of the protrusion. Whereas the Dalrymple sign is to be noted in the condition of rest of the eye when open, the Graefe sign obtains when the eyeball is in action only and in movement from above downward. It consists in the lagging of the upper lid in relationship with the upper edge of the cornea in motion from above downward. In health, if the eye is directed upward, and then follows an object—say the finger, brought down *slowly* to the horizontal meridian, the relationship of the upper lid to the cornea is preserved constantly; but in the Graefe sign the upper lid lags, and if there is sclera showing between the upper lid and the cornea in the position of rest, the band of sclera is seen to be wider as the eye descends from above downward. When the eye passes the horizontal meridian, the scleral band above becomes broader yet. When the Dalrymple band above is not visible in the primary position, I have noted that it frequently is seen as soon as the eye begins to descend from above downward. In such cases, likewise, when the horizontal meridian is passed, the band becomes still more marked. I have noticed other cases in which there was no Dalrymple sign in the primary position, and none in the descent from above to the horizontal meridian, but after the passing of the horizontal meridian, the sign became evident.

COMPARISON OF DALRYMPLE AND GRAEFE SIGNS

1. The Dalrymple sign may or may not be present in the primary position of the eye.

2. When it is present in the primary position, the Graefe sign becomes more marked as soon as the horizontal meridian is passed in motion downward.

3. When it is not present in the primary position but shows as soon as the movement downward is commenced, the Graefe sign is still more marked below the horizontal meridian.

4. When it is not present in the primary position, and does not appear in the movement downward as far as the horizontal meridian, the Graefe sign may, nevertheless, appear in the movement below the horizontal meridian.

5. The Graefe sign is more marked in movements below the horizontal meridian in all cases.

The Dalrymple sign is the natural sequence to the proptosis, and the Graefe sign is the natural sequence to the Dalrymple. I wish to lay particular stress on the fact that the Graefe sign is seen best when the eye descends very slowly. It will sometimes be lacking in marked cases if the motion downward is too quick. I have also noticed that the scleral band above in the Dalrymple sign is not of the same size at all times for the same position, but is sometimes more and sometimes less, according to the effort made by the patient to fix or relax.

These points may be looked on as overrefinements in observation; but as I have noted them, I believe they are worthy of remark, particularly since they have never been made before in print, so far as I am aware.

THE STELLWAG SIGN

The Stellwag sign has been confused with the Dalrymple, but should not be. The sign is simply infrequent winking, or nictitation, and is due, in my opinion, to the exophthalmos. The cornea, by reason of the protrusion and the retraction of the lids, becomes more or less insensible through exposure. Since the act of winking in health is caused by acute sensibility of the cornea to minute foreign bodies, air and wind, it naturally follows that if its sensibility is diminished, involuntary winking becomes lessened. Winking is nature's means of keeping the cornea smooth and moist.

Apropos of this sign, it has been noted that lacrimation—on one side or both sides—occurs in this disease; likewise epiphora. The latter is the natural result of excessive lacrimation. I have noted lacrimation mainly in exaggerated cases; and I believe it is due to irritation of the cornea from wind and foreign bodies. We cannot afford to forget, however, the possibility of the emotional element as a contributory cause.

MISCELLANEOUS OBSERVATIONS

Gifford, in 1906, reported, as an early sign in this disease, difficulty in everting the upper lid on account of its retraction and rigidity. He noted that the sign was not always present, and disappeared in from three to six weeks. I have found it always present since he remarked it, and in direct degree to the amount of proptosis. This would be natural in view of the stretching of the lid and the crowding of the muscle fibers by the protrusion of the eyeball. I doubt the accuracy of the observation that it disappears in from three to six weeks.

The Rosenbach sign consists in a trembling of the upper lid in closing the eye gently as though in sleep. He observes that the trembling disappears as soon as the eyes open, and is not present in actual sleep. I do not think this sign is characteristic of this disease alone. I have noticed it in excessively emotional people; and recently I have noticed it in a case of exaggerated exophthalmic goiter when the eyes were looking toward the front in the primary position. I believe this sign is due to instability of the tone of the muscular fibers of the levator and the orbicularis, caused by stretching from the protrusion and the exhaustion of nervous control. I think it is analogous to the trembling which takes place in the fingers when a delicate act is attempted after violent exhaustive exercise of the hand and arm. The same thing occurs with some surgeons when they attempt difficult and delicate operations. In rough acts, the hand is steady; but when delicate control is demanded, the muscular tone is lacking.

It has also been remarked that the tache cérébrale appears on the upper lids at times. This would be consistent with vasomotor irritability. I have not observed this. Pigmentation of the lids has also been noted. I have not seen this. Loss of the eyebrows and eyelashes has been observed. Nor have I seen this. An intelligent patient with exophthalmic goiter tells me that in her own case, and in the case of two sisters similarly affected, the hair on the head has become noticeably thin since the development of the disease.

An overhanging fold of skin on the upper lid has been noted. The lower lid likewise is said to be at times puffy. These two phenomena may be considered consistent with the protrusion of the eyeball. I have noted a puffiness of the upper lid, but not of the lower one. When the proptosis is very great, the cornea may become inflamed through dryness, and ulcers and pannus may occur. Protrusion would explain this. Several cases of choroiditis have been noted, and have been attributed to exposure of the cornea. I doubt that the choroiditis was due to exposure of the cornea.

Becker has found arterial pulsation of the retina in six out of seven cases. Others have made the same observations. I have never seen this. Inequality of the pupils has been noted. I have observed this. But I wish now to make the observation regarding the pupils which I believe on second thought almost every one will admit to be in accordance with his experience: In advanced exophthalmic goiter the pupils are almost always large. Dr. John Rogers, who has kindly sent me a number of his patients to study, has made this observation independently of myself. I have come to look on this fact as a consistent sign of exophthalmic goiter well expressed. I have noted that the pupils are larger in blonds than in brunettes. This would be consistent with the well known sympathetic sensitiveness of blonds. I have recently studied some other patients sent to me by Dr. Rogers and noted that the pupils in several cases were smaller than usual. These were postoperative cases. Dr. Rogers informed me that he has generally remarked that the pupils become smaller after operation.

As a rule, the external muscular system of the eye is unaffected, though bilateral paresis of the abducens has been mentioned; also that of isolated muscles. Moebius has remarked an insufficiency of combined convergence. This would be consistent with proptosis in the horizontal plane, with stretching of the internal recti, which are straighter and shorter than the external. Some have attributed these pareses to nuclear lesions, others to peripheral. I think they may readily be explained on the ground of the proptosis.

SUMMARY

1. Exophthalmos, or proptosis, is the first and basal sign of exophthalmic goiter. The great majority of the other signs follow this sequentially. The order in which the most prominent ones should be mentioned is: exophthalmos, Dalrymple's sign, Graefe's sign, Stellwag's sign.

2. In the Dalrymple sign, the sclera shows above and below the cornea and more markedly and frequently below than above. It may be absent above but present below, or vice versa. It is distinctly a sign observed in a condition of rest in the primary position of the eye.

3. The Graefe sign is seen only in motion from above downward, and is more marked in all cases in movements below the horizontal meridian. In order to demonstrate this sign, the eye should be made to move *very slowly* from above downward.

4. The pupils are as a rule larger than normal in exaggerated cases; and this sign is more marked in blonds than in brunettes.

5. Trembling of the upper lid sometimes occurs without closure of the lid.

The sign exophthalmos, taken in conjunction with goiter in the neck, tachycardia, and the nervous and psychopathic symptoms which go with these signs, form a picture that constitutes the entity known as Parry's disease, Graves' disease, Basedow's disease and exophthalmic goiter—the most marked and dramatic disease in the realm of medicine.

ABSTRACT OF DISCUSSION

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind.: Dr. Claiborne's theories as to the pathogenesis of the ocular signs in exophthalmic goiter are open to doubt, especially the view that exophthalmos is due to venous congestion in the orbit and an increase in the amount of orbital fat. I take exception to his statement that exophthalmos is the first and basal sign of ophthalmic disease, and that nearly all the other symptoms follow that symptom for mechanical reasons. Exophthalmos is one of the most striking features of ophthalmic goiter, though not so constant as other symptoms. The liability of exophthalmos to rapid changes upsets the theory that exophthalmos is caused by the abnormal deposit of retrobulbar fat; or that exophthalmos is due to the serous infiltration of the retrobulbar connective and fatty tissues of the orbit on account of vasomotor disturbances caused by thyrotoxicosis. If edema should really exist there would be no reason why it should not extend to the eyelids, and edema of the eyelids is far from constant in exophthalmic goiter. Postmortem examinations do not support the theory of a passive and venous congestion of the orbit as a cause of exophthalmos. Nor is there evidence of such congestion in the veins in direct communication with the orbital veins through the nasal, frontal and supra-orbital veins communicating with the ophthalmic veins. There should be, too, a venous stasis of the retina, but there is not. As to the exophthalmos being due to a marked dilatation of all of the arteries of the orbit, caused by thyrotoxic condition, and possibly to direct stimulation of the sympathetic nerve, we should expect to find a pulsating exophthalmos, which is never observed, even in the most pronounced cases. Dr. Claiborne does not consider the permanent contraction of Landstrom's muscle on account of the permanent thyrotoxicosis excitation of the sympathetic nerve as being a causative factor in the production of exophthalmos. While this theory is quite satisfactory to many, it fails to give a satisfactory explanation for the cases in which protrusion of the eyes is so marked as to cause dislocation of the eyeball. The sympathetic is an active and potent factor in the production of exophthalmos. That the exophthalmos is due to the mechanical irritation of the sympathetic nerve by the hyperplastic goiter is open to question. The sympathetic disturbances are, in the majority of cases, secondary and not primary. The Dalrymple symptom is entirely independent of the exophthalmos itself. Enlargement of the palpebral fissure is often found in normal individuals. Likewise, the Graefe symptom is found when no or little exophthalmos is present. When accompanied with some other thyrotoxic symptoms these signs become of great diagnostic value.

The diagnostic value of the Stellwag sign has been exaggerated because sometimes, and even in the most severe case of exophthalmic goiter, it fails to be present. The Moebius symptom is not in proportion to the degree of exophthalmos. According to Crotti, the Graefe, Kocher and Dalrymple symptoms are due to the irritation of the sympathetic nerve which supplies Müller's muscles. The theory that a disturbance of the sympathetic system is responsible for all of the signs of exophthalmic goiter, and that the thyrotoxic poison acts selectively on the sympathetic system, though the sympathetic disturbances are secondary and not primary has not been disproved.

Dr. W. H. Wilder, Chicago. I cannot agree with the view that all the ocular signs of this disease can be explained by the mechanical effect produced by the exophthalmos. Dr. Claiborne does not place enough value on the nervous influence. Exophthalmic goiter may exist without any noticeable exophthalmos. Some of the later signs like that of Stellwag, might be explained by the mechanical theory, but the peculiarity of the von Graefe signs seems to be the slight spastic action of the levator muscle of Müller. Excitation of the sympathetic nervous system by a toxin is a more probable cause of this sign and of a sign I first observed about twenty-five years ago. It consists of a peculiar little jerk or twitch of the eyes at the instant of changing the movement of abduction to that of adduction. This sign can best be elicited by having the patient gaze intently at the end of the finger or at a pencil held about 18 inches in front of the eyes and moved with a slow even pace from side to side so as to make the eye perform an excursion of abduction and adduction. When the eye reaches the limit of the excursion and changes from abduction to adduction, there will be seen a more or less pronounced jerk or twitching before it regains its steady movement. I have observed this as one of the earliest signs, even before those of von Graefe, Stellwag or Dalrymple, and I have never failed to get it in any case of exophthalmic goiter that I have studied. However, it may be observed in some nervous diseases, such as multiple sclerosis and lateral sclerosis, in which one may also observe varieties of spastic tremors of which this seems to be an illustration.

Dr. Edward Jackson, Denver: In the absence of measurement of the amount of exophthalmos and the position of the eyeball in the orbit with reference to the outer margin of the orbit, the symptoms of exophthalmos must be accepted with a good deal of skepticism. For several years I have been measuring the position of the eyeball in the orbit and I have been astonished to find that there was no exophthalmos when inspection disclosed a very decided exophthalmos; or to find an inequality in position of the eyeballs, one protruding much beyond the other, when I saw no difference in their appearance. In some cases the upper and lower lids are retracted and the eye appears to stand out, but after measuring in these cases again and again it has been a surprise to me to find that the appearance of exophthalmos does not agree with the actual position of the eye in the orbit. My attention was not called to the symptom Dr. Wilder described until yesterday. It is very striking, more so than the von Graefe sign and quite as positive as to exophthalmos. The jerk of the eye amounted to two millimeters or more in a case in which it was demonstrated to me.

Dr. J. Herbert Claiborne, New York: I have studied the subject from the standpoint of Dr. Bulson, and after deliberation it appeared to me that while other factors may exist in the causation of exophthalmic goiter, mechanical pressure is largely the cause. Dr. Jackson has set forth an idea which has been occurring to me since I began to write this paper. I wish I had always had at hand an exophthalmometer to study the question from that standpoint. I have observed that when the lid comes down and passes beyond the horizontal plane the scleral band between the lids becomes more obvious. I have noted that for twenty years. In several patients recently operated on by Dr. Rogers there was marked exophthalmos before operation; in three of these cases there was no exophthalmos whatever after the operation. Dr. Rogers is not an ophthalmologist, but he knows an exophthalmos when he sees it. Dr. Bulson stated that there is no arterial throbbing. Becker has reported seven cases in which there was arterial pulsation. I have also observed that in exophthalmic goiter the pupils are larger in blonds than in brunettes. Two of Dr. Rogers' patients were blonds, and he maintained that the pupils were much larger in them before the operation than is usual in brunettes.

THREE PERTINENT QUESTIONS ON MATERNAL FEEDING *

W. A. MULHERIN, M.D.
Associate Professor of Pediatrics, University of Georgia Medical Department
AUGUSTA, GA.

It is not my purpose in this paper to find fault with our textbooks. The authors of them are deserving of much credit and commendation. I merely wish to ask the question whether a divergence of opinion does not exist between some of our textbooks on pediatrics and the actual practice of a goodly number of pediatricians, on three points. The belief that this difference of opinion does exist prompts me to ask:

1. Is uncomplicated pregnancy an indication for immediate weaning?

2. May we not question the advisability of immediate weaning in mild typhoid fever?

3. Should not more positiveness exist in our textbooks regarding the advantages of complemental feeding over the method of alternating the breast and the bottle?

IMMEDIATE WEANING IN UNCOMPLICATED PREGNANCY

A fair number of our textbooks unqualifiedly state that the intercurrence of pregnancy is an indication for immediate weaning. Others leave a decided doubt in the reader's mind as to the advisability of immediate or slow weaning. A few others make it perfectly clear that pregnancy in itself is not an indication for immediate weaning.

I do not wish to question the advisability or the practice of slowly weaning a baby from the breast on the advent of pregnancy. I fully appreciate that nature does not intend or expect the mother to nurse a baby at the breast, and at the same time to nourish one in the womb. It is the advisability of *immediate* weaning, in uncomplicated pregnancy, that I think should be seriously questioned.

We fully appreciate that pregnancy "per se" does not generate toxins, or cause them to be formed in the mother. We further know that it is the exception, rather than the rule, for toxemia to complicate pregnancy, especially in these days, with expectant mothers so carefully and intelligently handled by our obstetricians. It is true that, as a general rule, pregnancy causes a diminished flow of milk, and also weakens its quality, especially the fats. Very rarely does it cause the milk to approach the character of colostrum milk, and give rise to digestive symptoms. In some cases the breasts continue to secrete abundantly, and the milk remains of such good quality that the infant could be properly nourished at the breast.

If such are the facts in the case, that uncomplicated pregnancy, in the vast majority of cases, only weakens the quality of the milk and diminishes the flow, why should we not slowly wean? If we immediately wean the baby, it will be necessary to start with a weak cow-milk formula, for the purpose of teaching the digestive organs to digest cow's milk. On this cow-milk formula it is not expected that the baby will properly thrive. If in ten days or two weeks or longer, we shall have succeeded in reaching a strong enough formula on which the baby will gain, satisfaction will be felt. Does it not seem logical, and a safer procedure, to utilize the breast-milk, even though the breast-milk is not as nourishing as before pregnancy, and slowly wean the baby? It does seem reasonable to expect that breast-milk, even though it is weak, is safer, more digestible, and just as nourishing as our weak milk formulas. If it be that the quantity of breast-milk is diminished by pregnancy, would not "complemental breast-feeding" be a more rational procedure than the sudden weaning process, especially when we remember that sudden or immediate weaning is fraught with many dangers of upsetting digestion.

The advisability of the slow weaning process is highly advisable, I will say, in our Southern states, during the excessive heat of the summer months. It has been my practice for many years to wean slowly in an uncomplicated pregnancy of the mother. I have had uniformly good results, and only in rare cases have I found it necessary to resort to immediate weaning. On the other hand, I have observed some very sad results in cases that I have seen in consultation, and in other physicians' practice, in which immediate weaning in uncomplicated pregnancy had been practiced.

As we consider the question from a commonsense point of view, does not the slow weaning, rather than the immediate or sudden weaning process, in uncomplicated pregnancy, appear to be a more rational procedure? Should not our textbooks be more instructive and specific on this point, and either approve or disapprove the actual practice of a large number of pediatricians and general practitioners?

IMMEDIATE WEANING IN MILD TYPHOID FEVER

Here again there is a diversity of opinion in our textbooks, some advocating immediate weaning, without any qualifying statements as to whether the typhoid is mild or severe, or whether the diagnosis is made early or late (say the tenth or twelfth day), or whether the breasts are secreting freely and have to be relieved artificially, or if the baby's blood shows a positive Widal reaction, or whether the mother feels equal to, and is anxious to nurse her baby. There are other textbooks in which the authors express themselves much more conservatively along this line. I wish it distinctly understood that I do not question the advisability of immediate weaning in severe cases of typhoid fever; in such cases prostration is marked, the breasts promptly stop secreting, and nursing is out of the question. It is only in the mild and very mild cases in which no direct contraindications exist that I would raise the question.

It appears to me that there are two questions to be considered in weaning a baby from the breast of a typhoid mother: (1) the danger of infection to the baby from the mother, and (2) the wear and tear on the mother. As regards the danger of infection to the baby, we know that typhoid fever is a relatively rare disease during the nursing age. Holt [1] says:

> In over 14,000 admissions to the Babies' Hospital, New York, covering a period of thirteen years, but eleven cases of typhoid were observed under 2 years of age, and but five cases of 1 year or under, the youngest case observed being a child 8 months old. In Philadelphia, where there has been much more typhoid generally than in New York, Griffith reports, under his personal observation, or in the Children's

* Read before the Section on Diseases of Children at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. Holt, L. E.: Diseases of Infancy and Childhood, Ed. 7, New York, D. Appleton & Co., 1918.

Hospital, forty-five cases under 2 years, and nine under 1 year; his youngest cases were children aged 3, 5 and 9 months, respectively. It is during epidemics that most of the infantile cases are seen, but even in epidemics it is surprising that so few infants are attacked.

As nursing mothers are no more protected against typhoid and its epidemics than other persons, it does appear singular that so few babies are infected from nursing typhoid mothers. Holt's and Griffith's figures seem quite convincing on this point. If, in addition to these statistics, we bear in mind that with the average case of typhoid in the nursing mother, the baby has usually been nursing for from seven to ten days before the diagnosis is made, and if we remember that this is the time when the typhoid organisms are found most abundantly in the blood; also, if we recall the fact that mother's milk has great protective powers, containing antibodies that render the baby immune to most infectious diseases, and that positive Widal reactions have been obtained with the milk of the mother ill with typhoid, and with the blood of her healthy nursing infant, it seems reasonable to state that there is not much danger of a typhoid mother transmitting the infection through her milk to the baby.

It is true that the intimate relationship existing between the mother and her nursing baby does expose the baby to infection from other sources. However, if proper precautionary measures are taken to safeguard against it, the likelihood of infection from this source is quite small. Furthermore, it almost invariably happens that the baby does not contract typhoid when suddenly taken from the breast of a typhoid mother, on the seventh or tenth day, when diagnosis has been confirmed by a positive Widal reaction. Is it not fair to assume, therefore, that there would be no more danger after the seventh or tenth day, with proper precautions, than existed for the first seven or ten days, when no precautionary measures had been practiced?

The Effects on the Mother.—We have all seen a fair number of mild, and I might add, very mild, typhoid cases, in young healthy mothers, with very little prostration, and a rather low continuous fever. In such cases the mother is not very ill, and her ability to nurse her baby is but slightly curtailed. In several instances I have seen babies taken suddenly from the breast and given artificial feeding, while at the same time the trained nurse had to express the milk from the mother's breast, for the sake of comfort. It is in these mild cases, in which, generally, the diagnosis has been made on the seventh, tenth or twelfth day, with the breasts secreting freely, the baby's blood showing positive Widal reaction, and the mother feeling equal to nursing her baby, that I would seriously question whether it is not good practice to continue the baby at the breast, and piece out, if necessary, with a complemental feeding.

I recall three cases of typhoid fever in nursing mothers that may be of interest in this connection:

I was called in consultation to see a baby, aged 3 months, who was nursing a mother with typhoid fever. The diagnosis had been confirmed by a positive Widal reaction. The attending physician insisted on immediate weaning, the mother protesting against it. It was in the country, in summer time, poverty existed, no ice was to be obtained, and the environment was anything but sanitary. The mother had been ill some ten or twelve days, and had been nursing her baby during her illness. The baby's blood showed a positive Widal reaction. I advised that the baby continue at the breast, as the mother's case was rather a mild one, with slight prostration, and the breasts were secreting well. The mother made an uneventful recovery, the baby did well, and did not contract typhoid fever.

Another case of typhoid came into our hospital, in which the mother had been ill some ten days before the diagnosis was made. In the meantime the baby, aged 6 months, had been nursing the breast with no ill effects. Both the baby's and mother's blood showed positive Widal reactions. The case was not a severe one, and the baby was allowed to nurse the mother and was given a complemental feeding. The mother recovered; the baby did exceptionally well and did not contract typhoid fever.

Another similar case, seen in consultation, was that of a mother who had been ill twelve days with typhoid before a positive diagnosis was made and confirmed with a positive Widal test. The case was a rather mild one, with the breasts secreting generously, the baby being about 7 months of age. The physician in charge had immediately weaned the baby for two days before I saw the case. The breasts were causing discomfort to the mother, and she was very anxious to nurse her baby. The breasts had to be relieved with the breast-pump. The baby's blood showed a positive Widal reaction. The baby was put back to the breast, with no complemental or artificial feeding, and the mother and baby went through the trouble with no ill results. The baby did not contract typhoid.

ADVANTAGES OF COMPLEMENTAL FEEDING OVER THE METHOD OF ALTERNATING BREAST AND BOTTLE

By complemental feeding I mean an artificial feeding given the baby after it has nursed the mother; by supplemental feeding an artificial feeding given the baby in place of the breast. Successfully to practice complemental feeding, a few points are necessary to remember. Sedgwick, the chief exponent of complemental feeding, stresses the persistence of demand made on the breast for more milk. Also, he emphasizes the importance of emptying the breasts by manual manipulation, or finger milking, after the baby has nursed the breasts; or, in case the baby is too weak to nurse, expressing the milk by manual manipulation at least five or six times daily, at regular intervals. In his own words, he advises the expression of the milk, to be carried out thus: "The breast is grasped about 1 cm. back of the colored areola, and a milking motion is carried out toward the nipples." He calls attention to the anatomy of the breast, reminding us that the ducts which contain the milk extend but a short distance back of the areola; also to the fact that in milking the cow we do not milk the udder, but the teats. Again, he mentions that massaging the breasts may do harm by causing trauma.

I believe it is generally accepted and agreed on by the profession today that unless the mother's health contraindicates it, complemental feeding has many advantages over the method of alternating the breast and bottle—supplemental feeding. I myself think it is a serious mistake to give supplemental feeding when complemental feeding can be practiced. With supplemental feeding it almost invariably happens that we begin by supplementing one breast-feeding with a bottle-feeding. Then we have to give a second bottle. Later a third bottle is required, and so it continues, until finally we have an entirely artificially fed baby; the mother's breasts receiving less and less stimulation, and less work being demanded of them, they slowly but surely cease to function.

It appears to me that there is a very vital point to remember in comparing the merits of supplemental with complemental feeding. That point is, the help

the breasts need when they cannot secrete enough milk properly to nourish a baby is not relief from work, but just the opposite, more stimulation, more demand for milk, and more work put on them.

Within the last year there have been presented to the profession many convincing reports on the establishment, maintenance and reinstitution of breast-feeding. Sedgwick of Minneapolis reports about 90 per cent. of breast-fed babies, in some 2,000 cases, obtained by means of his complemental breast-feeding. S. Josephine Baker of New York reports that about five or six years ago, in the health centers of New York City, there was only one breast-fed baby. Today, with these health centers caring for about 60,000 babies, at least 90 per cent. are breast-fed. By way of further substantiation of this fact, it might be well to recall the siege of Paris, in 1871, during which time the French mothers were not able to feed their babies artificially, and had necessarily to nurse them. The infant mortality in Paris never had, and has not since, reached as low a point as during that period. Again, it has been reported by a Belgian physician that during the World War, when the Belgian mothers were on starvation diet and were forced to nurse their babies, they did it so successfully that the infant mortality fell to a point the lowest in their history.

With such results before us, and with many other pediatricians who are properly and persistently using complemental breast-feeding and who are securing approximately 90 per cent. breast-fed babies as a result, does it not appear high time for the profession to awaken to the full realization that nature is a better friend to us, and to the babies, than we have heretofore appreciated? Should not our textbooks take cognizance of these facts and state that supplemental feeding, or alternating the breast and bottle, is wrong in principle and in practice; that it not only does no good, except in a few exceptional cases, but does a great deal of positive harm by taking work off the breasts; that with complemental breast-feeding, breast-milk can be established, maintained and reinstituted; that the tendency today is to go back to nature, and to do as little artificial feeding as possible?

ABSTRACT OF DISCUSSION

DR. JOHN LOVETT MORSE, Boston: It is improbable that a woman can nourish three people at the same time. In considering when and how we shall wean, we must consider the good of all three, the mother, the child in utero and the child born. It never occurred to me that when a textbook said that the baby should be weaned when the mother was pregnant, anybody had ever thought that the baby should be weaned quickly. I thought everybody meant that it should be weaned slowly. As to the complemental and supplemental feedings: I thoroughly believe in breast feeding, and I am convinced that many more women can nurse their babies than now do. They should be made to nurse their babies. Yet, there is another side to it. There is no question that certain wetnurses can nurse several babies; on the other hand, three is a limit to the amount of milk that a woman can give. There is a limit to the amount of milk which the overnervous and overrefined woman of today can produce. It is our business to get these women up to that limit, but we must realize that they cannot go beyond it. I have had no luck in reestablishing the supply of breast milk after it was gone, although I have read about other people doing it. On general principles, it is far better to give a complemental feeding than it is to give supplemental feedings. In deciding as to whether to use complemental or supplemental feedings, however, we must consider the circumstances in the individual case. If the mother is a woman who is always at home, it is a great deal easier for her to nurse her baby all the time, and never to make use of a bottle. If she is a woman with many other cares and duties, it may be far wiser for her to give the baby one or two bottle feedings a day. In fact, there are many women who will produce more milk if they can drop one nursing a day, and get out and have some amusement and attend to their other duties. Of course, the one thing which does increase the milk supply is the use and the complete emptying of the breasts.

DR. JAMES D. LOVE, Jacksonville, Fla.: The physician should be guided by his own experience. The maternal nervous organism is to be considered. If the mother, on account of her knowledge of her pregnancy, has acquired a morbid fear or dread in consequence thereof, it will produce such a profound disturbance of her nervous equilibrium as to cause marked alterations in the quality of the breast milk. Relative to the withdrawal of the baby from the breast in cases of mild typhoid fever, Dr. Mulherin has proved by his statistics that the danger to the baby is practically nil if allowed to continue nursing and much less in all probability than the baby would be subjected to were it abruptly removed from the breast. The satisfaction the mother derives from being able to nurse her baby is worthy of consideration. Probably the continuance of this function would have a very slight weakening effect on her. The discomfort that attaches to the frequent mechanical withdrawal of the breast milk is also a matter worthy of some consideration. I agree with Dr. Morse, and to a certain extent disagree with Dr. Mulherin, relative to complemental feedings. I believe that all healthy babies, certainly after they have reached the age of two or three months, should have one bottle feeding a day, provided, of course, that the milk supply is not very scant. It gradually accustoms the baby's digestive organs to the reception of some other food than the breast milk, and allows the mother from four to six hours a day, which she can devote to recreation, to rest or to social diversion. Thereby, her health oftentimes is so materially improved that she is not only able to nurse her baby longer than she otherwise would, but the quality of the breast milk is materially improved. It becomes our duty as pediatricians to impress upon the general public the importance of not lightly considering the withdrawal of the baby from the breast in cases of mild febrile disturbance, or in cases of uncomplicated pregnancy.

DR. I. L. VAN ZANDT, Fort Worth, Texas: My experience has been varied. I started out with the idea that the pregnant woman must on no account nurse her child. A woman with a very sick baby from bowel trouble had a miscarriage at six months. Her milk came, and her baby began to fatten up. I felt that the milk of a pregnant woman was poison to a baby! However, another woman was nursing a baby a year or two old when she was six months pregnant. The baby had not suffered. Evidently the milk of a pregnant woman was not poison! I saw a little girl, 10 years old, ill with typhoid. A nine months old baby in the family had the same kind of fever. The mother was nursing it; and yet she was six months pregnant. The baby lived, and so did the other child. I saw a woman nurse her two year old baby while in labor. This was her fifth child, and she had never stopped nursing, except after the first one; and yet she had reasonably healthy children. A woman with typhoid had a forceps delivery. She got well, but the baby died. Another woman with typhoid had a baby two or three months old. She nursed it. That baby got sick about the time the mother got well. In two weeks she had plenty of milk for her baby and it got well. A woman sick about ten days with typhoid was delivered of a child at about normal time. She had an abundant flow of milk, was allowed to nurse the baby and mother and baby both did well.

DR. A. J. SCOTT, JR., Los Angeles: An infant, 9 months old, with typhoid, was nursing a mother who evidently had walking typhoid. It did not become ill. In Los Angeles, if it is necessary to wean abruptly, we do not have the gastro-intestinal disturbances that you have in the East; but, as a rule, we advise the gradual discontinuance.

DR. LOUIS H. RODDY, Waco, Texas: Most pregnant women who come to us are not seen when they first become pregnant. They come when the nursling is not well. It is not just a

matter of weaning the child. We must give that child a supply of food on which it will thrive. No one would take a child off of any milk that is agreeing with it. As to weaning in acute infections, we must not only take care of the child, but we must think of the mother as well. In our last epidemic of influenza, we had many cases of pneumonia that I know would have proved fatal to the mother if we had weaned the child immediately. The very fact of having her breast massaged by a nurse or a doctor who does not know how to manipulate the breast properly is more nerve wracking than the mother can stand; and that may have been a factor in determining whether the mother would get well or die. In those cases we generally let the child nurse. In the case of a mother who has had three weeks of typhoid, when considering whether I should let the mother nurse her child for two or three weeks longer, or take the child off the breast, and do the mother a tremendous amount of harm by trying to dry up the breast, I certainly would let that child nurse.

Dr. William Weston, Columbia, S. C.: The chief contribution that the pediatricians have made to the reduction of infant morbidity and infant mortality has been that they have insisted on going back to Nature. In lower animals, the fact of pregnancy does not act as a reason for the cessation of nursing offspring. That is also true among primitive people, and among humble people. Why should not we insist on all people observing these rules, so far as we may be able to influence their lives? That will depend entirely on how the mother and the baby are getting along. If they are both getting along well, we should leave conditions as they are, and insist on the infant continuing to nurse its mother.

Dr. Charles James Bloom, New Orleans: These cases divide themselves into four distinct groups, the first group being those that are able to nourish without any symptoms whatsoever; the second group including those that are able to nurse with after-nutritional disturbances; the third group being those that are able to nourish at times other than during the physiologic periods; and the fourth group, those that are unable to nurse at all. The first group has unfortunately been limited. The number of children that are able to nurse without any symptoms whatsoever have been less than 10 per cent. of the number of cases that I have observed. The second group has constituted a very large proportion of my cases. The third group also forms a limited class. The fourth group forms a very large proportion of the cases. Not infrequently a mother will bring a child to a specialist concerning the whys and wherefores regarding the number of stools the child is having. The child might have a stool after each feeding, or vomit after each nursing. Some children have an urticarial rash, or other evidences of intestinal intoxication. I have considered this question, both from the standpoint of the abrupt cessation of nursing, and from the standpoint of supplemental and complemental feedings, and it is, in my judgment, the right thing to do, to feed the child at the time when the diagnosis is made—rather than continuing breast feeding alone.

Dr. W. A. Mulherin, Augusta, Ga.: If every one would read and interpret our textbooks as Dr. Morse has, there would be no need for my paper. Unfortunately, there does exist a divergence of opinion between our pediatric books and the actual practice of the pediatricians. That mothers are not cows, and that their breasts have a limited capacity for secreting milk, is the vital point in complemental feeding. The fact that mothers have a limited capacity for nursing their babies is recognized, and the point is stressed that this limited capacity can be increased by putting more work on the breasts, by extra stimulation and more demand made on the breasts for milk. If less work is demanded of the breasts, less milk will be secreted. A very important essential to success with complemental feeding is thorough conviction on the part of the physicians and mothers who practice it. As to giving one bottle at three months of age, irrespective of the amount of breast milk, the object in substituting artificial feeding, in the early months of life, is to anticipate and prevent trouble in weaning in the later months; also to relieve the mother of the strain of too constant nursing. If the baby is taught to take water from a bottle, it will answer the purpose of teaching the baby to take the bottle, and therefore one artificial feeding would be unnecessary. As regards relief to the mother, I think that taking work off the breasts tends to promote a lack of secretion, and therefore should not be advocated. As regards Dr. Bloom's statement that immediate weaning is the better practice when pregnancy supervenes in a nursing mother, his experience is not in keeping with mine, and the experience of many other pediatricians. If Dr. Bloom will give slow weaning another fair trial, he will find it to be the better of the two. I wish to specially stress that there exist today very few direct indications for immediate weaning, and, therefore, as a rule, slow weaning is a more practical, more logical and a safer procedure than immediate weaning.

FREQUENCY OF SYPHILIS WITH CANCER OF THE LIPS, TONGUE AND BUCCAL MUCOUS MEMBRANE*

N. AUSTIN CARY, M.D.
OAKLAND, CALIF.

The literature abounds with discussions of syphilis as an etiologic factor in cancer of the mouth and especially of the tongue. Statistics of the proportion of cases of cancer of this region associated with a positive Wassermann reaction or other evidence of syphilis vary from less than 2.5 to more than 40 per cent. Reference is made to a recent statement of the view that syphilis is an important etiologic factor presented by D'Arcy and no further review of the literature will be attempted here, as my purpose in this paper is not to renew the entire discussion, but to present the statistics compiled from a comparatively large series of cases and to call especial attention to their bearing upon one important consideration—the decision for or against a course of antisyphilitic treatment in mouth lesions associated with evidences of syphilis.

The tables submitted in this report were compiled from 907 case histories in the record files of the Surgical Pathology Laboratory of the Johns Hopkins Hospital, the material being drawn from that hospital, the clinic of Dr. Joseph C. Bloodgood at St. Agnes Hospital, and from various other sources. All the case records available were included, and the series does not, therefore, represent selected cases.

In a series as large as this and taken from varying sources, it is inevitable that many of the records should be incomplete. It was particularly noted that Wassermann tests were recorded in only a comparatively small percentage, this being due in part to the lack of completeness of many records, but also very largely to the fact that the earlier cases of the series antedate the use of the Wassermann test. Each case record has therefore been studied to ascertain any history of primary sore or of secondary or tertiary manifestations or of so-called parasyphilitic lesions. In the accompanying tables, cases are classed as "positive" when either a positive Wassermann test or reasonable evidence of syphilis in the past history has been found.

Of the 907 mouth lesions in this series, 771 were malignant and 136 benign. Of all the cancer cases, only three occurred in the white female, and in none of these could syphilis be proved as an etiologic factor—in all three cases, irritation of the mucous membrane had been produced at the site of growth by the habit of placing snuff under the tongue. No cases of cancer were observed in the black female and only two in the

* From the Surgical Pathology Laboratory of the Johns Hopkins Hospital, Dr. Joseph Colt Bloodgood, director.

black male, in spite of a very considerable proportion of negro patients in Baltimore clinics. This fact is of special interest in view of the well-known prevalence of syphilitic infection in this race.

The association of leukoplakia with cancer has been reported by other observers with great variability; but a discussion of the relations of leukoplakia, cancer and syphilis is outside our purpose here and mention will only be made in passing that a very small number of cases of cancer associated with or preceded by leukoplakia have shown a positive syphilitic history.

To recognize the presence of leukoplakia is, of course, very important. To know that cancer exists with the leukoplakia is most important. The greatest error that can present itself in the association of syphilis with leukoplakia and cancer is the loss of valuable time in carrying out a protracted course of antisyphilitic treatment on the theory that leukoplakia is due to syphilis, when an actual malignant neoplasm is already present.

In the accompanying tables, the statistics compiled are shown first grouped according to the important locations in the mouth, and then the cancer cases from all locations are collected in one table.

In the group of cases presented in Table 1, there were thirty-five cases of cancer, in none of which could be found a positive Wassermann test or definite evidence of syphilis in the past history. In two syphilitic lesions, the Wassermann tests were positive.

TABLE 1.—LESIONS OF THE UPPER LIP

Lesions	History of Syphilis or Positive Wassermann Test	No Evidence of Syphilis
Cancer	0	35
Malignant wart	0	1
Benign wart	0	5
Other benign tumors	0	3
Ulcers (nonspecific)	0	2
Tuberculosis	0	0
Syphilis	2	..
Totals	2	46

Total number of cases 48
Total number of cancer cases 35
Percentage of cancer cases with evidence of syphilis 0

In the 407 cases presented in Table 2, syphilitic and tuberculous lesions were not found. There were 364 cases of cancer, in only twelve of which, or 3.4 per cent., was either a positive history of syphilis or a positive Wassermann test obtained.

TABLE 2.—LESIONS OF THE LOWER LIP

Lesions	History of Syphilis or Positive Wassermann Test	No Evidence of Syphilis
Cancer	12	352
Malignant wart	0	14
Benign wart	0	8
Other benign tumors	1	11
Ulcer (nonspecific)	1	8
Tuberculosis	0	0
Syphilis	0	0
Totals	14	393

Total number of cases 407
Total number of cancer cases 364
Percentage of cancer cases with evidence of syphilis 3.4

Of the 173 cases of cancer presented in Table 3, a history of syphilis was given in seven. In four of these the Wassermann test was negative, but regardless of negative Wassermann findings, these cases which gave fairly definite histories of primary or secondary syphilitic lesions are grouped in the column of cases showing positive evidence of syphilis.

In the records of the cancer cases in this group, twenty-three Wassermann tests were reported, three positive and twenty negative.

TABLE 3.—LESIONS OF FLOOR OF MOUTH AND MUCOUS MEMBRANE OF LOWER JAW

Lesions	History of Syphilis or Positive Wassermann Test	No Evidence of Syphilis
Cancer	7	166
Malignant wart	0	7
Benign wart	0	5
Other benign tumors	0	7
Ulcer (nonspecific)	0	4
Tuberculosis	0	2
Syphilis	0	0
Totals	7	191

Total number of cases 198
Total number of cancer cases 173
Percentage of cancer cases with evidence of syphilis 4.65

In the group of cases presented in Table 4 there were 254 cases, of which 199, approximately four fifths, were cancer. Of these cancer cases, twenty-nine, or 14.5 per cent., gave a positive history of syphilis or a positive Wassermann reaction or both. The majority of these were old men with a history of

TABLE 4.—LESIONS OF THE TONGUE

Lesions	History of Syphilis or Positive Wassermann Test	No Evidence of Syphilis
Cancer	27	172
Malignant wart	1	1
Benign wart	0	20
Other benign tumors	1	12
Ulcer (nonspecific)	0	7
Tuberculosis	0	9
Syphilis	4	0
Totals	33	221

Total number of cases 254
Total number of cancer cases 199
Percentage of cancer cases with evidence of syphilis 14.5

syphilis covering periods of from two to forty years. Wassermann tests are recorded in twenty-two cases in this group, ten positive and twelve negative.

Of the 907 lesions of the mouth, 721 were cancer. A positive history of syphilis or a positive Wassermann reaction or both were found in forty-eight, or

TABLE 5.—TOTAL OF ALL CANCER CASES

Location of Cancer	Evidence of Syphilis	No Evidence of Syphilis	Totals	Evidence of Syphilis Per Cent.
Upper lip	0	35	35	.00
Lower lip	12	352	364	3.40
Mucous membrane of mouth	7	166	173	4.65
Tongue	29	170	199	14.50
Totals	48	723	771	6.23

6.23 per cent. This is perhaps somewhat lower than the usual percentage of positive Wassermann reactions obtained in a general service of dispensary patients. The point of especial interest, however, is not the gross percentage of positive Wassermann reactions or histories, but the percentages in the various location groups as shown in Table 5.

It will be noticed that the percentage of cases giving evidence of syphilis is more than three times as great in cancer of the tongue as in cancer in any of the other locations about the mouth. In spite of case record deficiencies, such a preponderance in a large series of cases is certainly very striking and bears out

the more or less widely accepted view of the frequent association of syphilis and cancer of the tongue, the assumption being that syphilis may predispose to cancer in this location.

The fact of greatest importance, however, and the one which it is desired to emphasize in this paper is that a history of syphilis or a positive Wassermann reaction or both may be obtained in at least one of every seven cases of fully developed cancer of the tongue. It needs no further argument to indicate that, if too much importance is attached to a history of syphilis or a positive Wassermann test, the early diagnosis—which is the urgently important diagnosis—of cancer of the tongue will be missed at least once in every seven cases.

The inference from these considerations is that, in the presence of a lesion, in the differential diagnosis of which cancer cannot be ruled out with certainty, only the briefest of courses of antisyphilitic treatment should be carried out before proceeding to excision and accurate histologic diagnosis.

CONCLUSIONS

1. Syphilis in association with cancer of the tongue is approximately three times more common than in association with cancer in other locations about the mouth—14.5 per cent., or about one in seven cases.

2. This very fact is urgent reason against protracted antisyphilitic treatment in tongue lesions which may be cancer, even in the presence of positive evidence of syphilis. Regardless of the causal relationship of syphilis to cancer, once a neoplasm has been established the prognosis is that of cancer and not of syphilis, and treating the syphilis will not affect the cancer, but will only delay urgently needed surgery.

304 Federal Realty Building.

RADIUM IN THE TREATMENT OF MALIGNANT TUMORS OF THE NOSE AND THROAT

ITS USE AND POSSIBLE ABUSE *

ROBERT SONNENSCHEIN, M.D.
CHICAGO

While the literature on any medical subject is, of course, a very important index of the activity of the work being done in that particular branch, still it is not entirely determinative, for many men because of one reason or another do not report their cases. This is fairly well shown in the fact that while the literature on radium therapy as such is voluminous, the references to its use in malignant tumors of the nose and throat are relatively few. In any field that is comparatively new it may, therefore, be advisable to describe typical cases, to survey carefully the available literature, weigh the evidence deduced from other men's reports, perhaps determine indications for the employment of a substance like radium, and consider its good and unfavorable effects, if any.

Just as it is true that "two swallows do not make a summer," so the report of any one case cannot go far toward formulating any conclusions regarding surgical procedure. The case to be here detailed was for a short time under the care of Dr. Joseph C. Beck, and it is at his instigation that I am presenting it and analyzing the literature.

History.—Mr. P. L., aged 62, Russian, watch-maker, was referred June 9, 1919, by Dr. S. Mann, who stated that he first saw the patient at the end of April. At that time there was pain in the right side of the throat, dysphagia and swelling of the tonsils and pillars, and the latter structures seemed agglutinated. Dr. Mann suspected malignancy and stated that the apparent infection of the posterior pillar was an intercurrent affair. He had excised the mass, and blood escaped. The Wassermann reaction at that time was negative. The pain continued and there was considerable loss in weight. A month later the patient was examined by Dr. Novak, who also found the swelling and had another Wassermann test made, with negative results.

Examination.—When I first saw the patient he was suffering great pain, especially on swallowing, and had lost about 20 pounds in weight. The pharynx showed great swelling of the right tonsil, faucial pillars, especially the posterior, and the soft palate. There was an ulcer almost the size of a dime on the right posterior pillar, covered by a thick, tenacious secretion, and some swelling behind the right posterior pillar. The right cervical lymph glands near the angle of the jaw were enlarged. Smears made from the ulcer were negative for the fusiform bacillus and the spirillum of Vincent's angina. The swelling behind the right posterior pillar was incised, but only a very small amount of pus escaped, and the swelling of the other structures of the right side of the pharynx did not diminish. Another Wassermann test was made and again found negative. A piece of tissue excised from the right posterior pillar was sectioned and proved to be a mixture of spindle and round cell sarcoma.

Treatment.—Radium treatments were then instituted by the late Dr. Woelfel of the Physicians' Radium Association. Let me say here that so far as possible, I believe radium treatments should be in the hands of the laryngologist, in cooperation with the radiologist. July 18, 1919, at Michael Reese Hospital, two platinum needles 0.3 mm. thick, containing 12.5 mg. of radium each, were inserted into the soft palate and right tonsil for ten hours. Six double strength radium plaques containing 120 mg. of radium, with an area of 12 square centimeters, screened with 3 mm. of silver, were placed at a distance of 9 mm. from the right side of the neck opposite the tonsils to cross fire, and to irradiate the lymph glands, for twelve hours. July 31, two needles of 12.5 mg. each were inserted in the right tonsil for six hours. August 22, three capillary glass tubes containing 25 mg. each of radium, screened by 1.4 mm. of gold, in parallel on thick lead spatulas, were held against the right tonsil for five and a half hours. August 23, three tubes of 25 mg. radium each, screened with 1.4 mm. of gold on a thick lead holder curving around the right half of the soft palate (one tube posteriorly, one tube on the margin, one tube on the anterior surface), were held in place two and a half hours. August 25, the same procedure was adopted as on August 23, for two and a half hours. Thus a total of 2,630 mg. hours of radiation were used.

The patient had noticed a metallic taste ever since the radium treatment had been instituted. July 25, one week after the first radiation, the swelling of the tonsil, the faucial pillars and the soft palate had greatly diminished. August 22, the swelling was even smaller, and the ulcer on the right posterior pillar had healed; the cervical lymph glands were very small. From September 5 to October 3, the patient was in the hands of Dr. Joseph C. Beck during my vacation. Such extensive and painful burns had developed on the soft palate and right side of the tongue that swallowing was impossible, so he had to be fed with a stomach tube. There was a necrotic mass in the supratonsillar region and on the anterior pillar. Hot boric compresses, hot salt gargle and pyramidon were used. By September 23, the necrotic mass was practically gone, and on October 3 the patient was doing nicely and could swallow easily. November 20, the patient was feeling very well, looking fine and had regained

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

his former weight. The pharynx showed half of the right tonsil gone and in its place a smooth scar. The latter was also seen in the soft palate. December 17, the patient presented himself and was feeling perfectly well; the same condition was noted, Jan. 14, 1920. He then went to California, and the reports received from him since then are to the effect that he is in perfect health.

For malignant neoplasms of the nose and throat, operations were probably the earliest form of treatment, with varying success, depending on the extent of the growth, the stage at which the operation was performed, and its thoroughness. When confined to the nasal chambers, tumors can be removed with snares, the galvanocautery loop, thermocautery, etc.; but when the accessory sinuses are involved, only a radical procedure will avail. Later there was added to the surgical treatment the use of arsenic and *Streptococcus erysipelatis* or Coley's serum. Finally roentgen rays, fulguration with the high frequency spark, and radium were employed in the effort to arrest and eradicate the malignant process.

THE PHYSICS OF RADIUM

While we are acquainted with the physics of radium, it may not be amiss for the sake of completeness to note briefly the fundamental facts and principles involved.

Atoms are said to consist of a nucleus of positive and negative electrons with an outer system of negative electrons rotating about the nucleus, and these two sets of electrons are supposedly balanced. In some substances the atoms are in a transitional state, and are continuously "exploding," as it were, with rearrangement of the electrons, and usually with expulsion of charged particles traveling at high speed. These are the so-called "radioactive" bodies, and by their disintegration other products are formed which again undergo changes, until stable substances are reached. There are three of these radioactive series—the uranium, actinium and thorium. In the uranium series the radium is the most important member, with a half value period of 1,700 years; that is to say, it diminishes in weight one-half in that length of time. As it breaks down, alpha particles are given off, and a heavy gas called "radium emanation" (or niton) is formed, whose half value period is only 3.85 days, so that it is much more radioactive than radium itself. This emanation emits beta and gamma rays, and has the property of conferring radioactive power on the various substances with which it comes in contact. Three kinds of rays are thus derived from radium: Alpha, which consist of positively charged helium atoms traveling at the rate of 12,000 miles a second. These rays have very slight power of penetration, and are easily screened by a few layers of paper or by very thin glass tubes. Beta rays are negatively charged electrons of the same type as the cathode rays of the roentgen-ray tubes, are 100 times as penetrating as alpha rays, and have approximately the velocity of light. There are soft and hard beta rays, the latter penetrating deeply. These rays may be absorbed by a few millimeters of heavy metals, such as platinum. Gamma rays, similar to hard roentgen rays, are derived from radium C, and are more perentrating than the hardest rays from a Coolidge tube. The gamma rays consist of ether pulses of extremely short length but of great velocity. They are from ten to 100 times as penetrating as the beta rays.

When beta or gamma rays impinge on any substance, secondary rays are produced which are very penetrating and often produce burns. In radium therapy we depend on the action of the hard beta and the gamma rays, and, as will again be noted later on, by covering the tubes or applicators with rubber the action of these secondary rays on the tissues is avoided. Platinum, silver, lead or even aluminum, filter out the alpha and the soft beta rays.

THERAPEUTIC EMPLOYMENT

Units Employed.—For radium salts the weight is used as the unit. But in the case of the emanation, the estimation is made in curies. A curie is the amount of radium emanation in equilibrium with 1 gm., of radium element; that is, the point at which the quantity of emanation disintegrating per second is equivalent to the quantity produced by the radium in the same time. By subdividing the curie we get the millicurie and microcurie.

Dosage.—Colwell and Russ[1] maintain that "milligram-hours" is a very uncertain and indefinite expression of dosage; that there is a geat difference between a large dose acting for a short time, and a small quantity acting for a long time. They state that "undesirable damage is eliminated by keeping the quantity factor of the radium dose high and the time factor low in the case of the columnar-cell complex, and vice versa in the squamous-cell complex."

Methods of Application.—While the emanation has been used by inhalation (alone or with oxygen), or dissolved in water, oil or other liquids, its chief value lies in its use in glass or metal tubes employed like radium tubes, by insertion into tumor masses the rapid reduction in the activity of the gas ever being borne in mind. The emanation may by special electrical device be deposited on metal points or flat surfaces. The form perhaps most generally used is that of radium salts. It may be applied on linen ("toile"), which is impracticable when asepsis is needed; or, it is more extensively used in flat applicators which are covered with a varnish, or it may be mixed homogeneously in thin glass plates. Screens of lead or other heavy metals are used to protect the surrounding tissues. Most commonly used are tubes of thin glass screened by platinum, gold, etc., and containing the free salts of radium, of which the sulphate is most often employed. The tubes are sometimes made of very small diameter and pointed like a needle, thus facilitating their insertion into the tissues. These tubes may be used externally, within the cavities of the body, such as the nose, mouth or esophagus, or by insertion into the tumor itself. The effects of radium application are dependent on the amount of radium used, the duration of exposure, the distance of the applicator from the tissues, and the character of the filters employed. The latter must be of definite thickness, depending on the quantity of radium used and the tissues to be treated. According to Knox, silver and lead have equal powers of obstructing the passage of rays, while platinum possesses twice their absorptive action. Not only are filters needed, but it must be remembered that the secondary rays produced by the action of radium rays on these filters are injurious to the tissues and may produce burns. Rubber tubing, from 0.25 to 4 mm. thick, will cut off these secondary rays. Air space between the radium and the body also acts as a filter by pre-

1. Colwell and Russ: Radium, X-Ray and the Living Cells, 1915.

venting radiations of certain length from reaching the tissues. In long exposures, from ten to thirty layers of lint should be placed between the radium tubes and the body. When radium tubes are used in the substance of a tumor, various points, according to Knox, should be taken into consideration namely: (1) The tube must be surrounded by the growth; (2) if more than one is used they should be placed at equal distances so that an equal action may be obtained throughout the growth and, (3) the radium tube inside the filter should be enveloped in rubber tubing closed at each end.

Effects of Radium on Tissue Cells.—Wood and Prime showed that exposure to beta and gamma rays for a time just too short to kill the tumor cells caused a marked slowing in their growth. They cannot explain the variability in lethal action of the rays except to say "that it is exhibited only in groups of young cells undergoing, or which have recently undergone mitosis, and that older cells escape to grow in the tissues of the host and produce tumors." They found that from 80 to 100 mg. of radium element would kill cancer cells in seven hours. To get lethal action in the depths of the tissue the gamma rays are essential. That immature cells or those in a state of subdivision are more sensitive to radiations than those which have already acquired adult morphologic and physiologic characters is the law propounded by Bergonne and Dribondeau, and quoted by Knox.[2] Radium acts on normal tissues by stimulating in small doses, with larger amounts producing early congestion and later fibrosis. If the exposures are prolonged and the filtration is insufficient, the action of the rays may become caustic, or the process may go on to necrosis or sloughing. With proper exposure there will be inflammatory reaction, which slowly subsides; fibrous tissue forms, cutting off the blood supply, with necrosis if the action is rapid, or atrophy if it is slower. Radiation effects depend on quantity of radium, filtration, distance of application and length of exposure. Ionization of the nuclei, alteration in type of the cells to a more benign form, the production of antibodies, etc., are some of the theories advanced by Ewing,[3] Lazarus-Barlow,[4] Wood and others, to explain the action of radium on the tissue cells.

Methods of Application.—Wickham[5] treated superficial lesions with all rays; Dominici filtered out all but the gamma rays; Knox and most others believe that the best results are obtained without too much filtration, using both beta and gamma rays. For superficial effects the filter is thin or lacking, and the exposure short; for deep effect a filter and longer exposure are employed. The appearance of even slight reaction on the skin or mucosa indicates that the maximum dose has been given. Lannois, Sargnon and Moutet[6] aim to strike hard, and use as large a dose as possible, such as from 30 to 120 mg. of radium bromid left in place from twenty-four to thirty-six hours. Hanford[7] also favors very large doses in the effort to get quick results, using from 1,200 to 1,500 mg. hours, preferably in two sessions in cases of cancer of the tonsil. Ramos[8] uses 12 mg. of radium bromid in tumors of the nose and throat, but does not state for what length of time. E. G. Beck and G. W. Warner[9] advocate removing the skin and overlying tissues in treatment of deep-seated, inoperable cancer, since the skin, fat, etc., act as very strong filters. Superficial malignant growths respond readily to the roentgen ray and radium, and by thus exposing the deeper tissues they then react practically like superficial growths. Barajas,[10] in laryngeal tumors, uses gamma rays, carefully avoiding the stimulant action of secondary rays. He employs from 45 to 80 mg. of radium with a maximum duration of two hours at each session. In his opinion radium is contraindicated in the hemorrhagic forms, as its use increases hemorrhage from the tumor and the areas immediately around it. This view, however, is just the opposite of that held by most other men who employ radium.

Indications for the Use of Radium.—That radium should be used both preoperatively and postoperatively is recommended by Boggs[11] and also by Levin.[12] Probably most of the cases of malignant tumors of the nose and throat are treated, if one may judge from the reports, with radium irrespective of whether operative work is contemplated or not. Handley[13] says that the area to be covered should be from 12 to 16 inches with the center at the site of the growth when postoperative radiation is employed in order to affect the lymph channels along which the cells grow and spread. Field[14] suggests radium when surgery is impossible or impracticable, combined with surgery when complete removal is impossible, or in hopeless cases to relieve pain, hemorrhage, odor, discharge and sepsis.

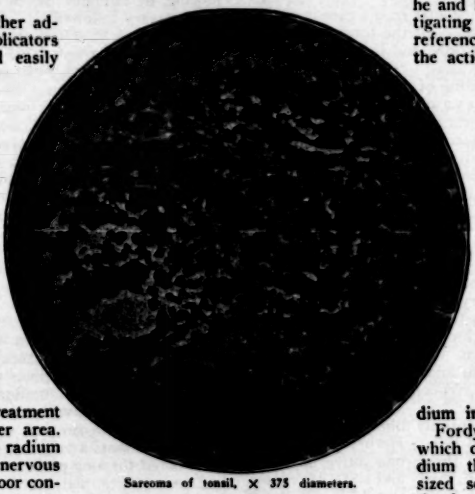
Action of Radium in the Various Types of Tumors.—The consensus as voiced by Lannois,[15] Willis,[16] Woelfel, Dawson Turner,[17] Barajas, Kennedy,[18] Pinch[19] and others, seems to be that tumors from the mesoderm are very sensitive to radium rays, while those from the ectoderm are much less responsive. That the destructive action of radium on tissues is apparently directly proportional to the amount of nuclear material in the tissues irradiated seems to be demonstrated in the fact that sarcomas are very favorably influenced, especially the lymphosarcoma, or round-cell forms. The carcinomas are much more resistant to treatment, especially the squamous-cell type. Hence it is that cancer of the lingual and buccal

2. Knox: Actions of Radiations on Tissues, Radiotherapeutics, London, 1917.
3. Ewing, James: Some Late and Distant Effects of Radium, J. Cancer Res. **4**: 45, 1919.
4. Lazarus-Barlow, W. S.: Arch. Radiol. & Electroth. **24**: 1 (June) 1919.
5. Wickham, Louis, and Degrais, Paul: Radium Therapy, New York, Paul B. Hoeber, 1912.
6. Lannois, Sargnon, and Moutet: Radium in Treatment of Tumor of Ear, Nose and Throat, Bull. del'Acad. de méd. **81**: 638 (May 13) 1919; abstr. J. A. M. A. **73**: 68 (July 5) 1919.
7. Hanford, C. W.: Large and Small Doses of Radium, Surg., Gynec. & Obst. **30**: 210 (Feb.) 1912.
8. Ramos, A.: Treatment of Laryngeal Tumors with Radium, Med. Ibera **7**: 20, 1919; abstr. Surg., Gynec. & Obst., September, 1919; id., ibid., abstr., **29**: 229.
9. Beck, E. G., and Warner, G. W.: Surg., Gynec. & Obst. **29**: 325 (Oct.) 1919.
10. Barajas, H.: Treatment of Laryngeal Neoplasms by Radium, Med. Ibera, Numero Extraordinario cour nac. de med. y cir., 101; abstr. Surg., Gynec. & Obst. **29**: 479 (Dec.) 1919.
11. Boggs, R. H.: Comparative Value of Radium and X-Rays, Am. J. M. Sc. **156**: 690 (Nov.) 1918; Radium in Malignancy of Mouth and Throat, Pennsylvania M. J. **21**: 511 (June) 1918.
12. Levin, I. and Levine, M.: Evidence of Therapeutic Value of Radium and X-Ray, Ann. Surg. **67**: 422 (April) 1918.
13. Handley, W. S.: On the Mode of Spread of Cancer in Relation to Its Treatment by Radiation, Arch. Radiol. & Electrotherapy **24**: 137, 1919; abstr. Surg., Gynec. & Obst., Febuary, 1920.
14. Field, C. E.: Radium, Its Present Status as Surgery's Adjunct, M. Rec. **95**: 1081 (June) 1919.
15. Lannois: Radium Therapy of Tumors in Otolaryngology, Bull. de l'Acad. de méd. **70**: 638, 1919; abstr. Surg., Gynec. & Obst., September, 1919.
16. Willis, A. M.: Preoperative and Postoperative Treatment of Neoplasms with Radium, Virginia M. Month., April, 1919.
17. Turner, Dawson: Notes on Radium Treatment, Edinburgh M. J. **22**: 79 (Feb.) 1919.
18. Kennedy, T. C.: Present Status of Radium Therapy, J. Indiana M. A., February, 1919, p. 36.
19. Pinch, A. E.: Report of the Radium Institute, M. Rev. London **21**: 141, 1918.

mucosa is very refractory and usually gives disappointing results. Lannois asserts that the epithelioma containing epithelial pearls (globe corné) is hardly amenable at all to radium. Knox classifies the response to radiation of the various tissues in the following order: Most rapid are the inflammatory enlarged glands; less so the lymph adenomatous glands, the sarcomatous, tuberculous, and then carcinomatous glands. The last named rarely disappearing completely.

Comparison of Radium with Roentgen Rays.—Both forms of rays have selective and inflammatory action, but radium can be made to produce a reaction of much greater degree without permanently injuring healthy tissue than can the roentgen rays. With radium, cancer cells are destroyed at a distance of only 2.5 to 4 cm. from the tube, but this action can be increased by cross-firing. The beta and gamma rays of radium, especially the latter, have greater penetration than any of the roentgen rays.[20]

Radium possesses further advantages in that the applicators are small, portable and easily handled, and there is no danger of high-tension electric shocks to patients. Radium can be easily applied to the interior of tumors without destruction of intervening tissues, and can very well be used in cavities like the nose, mouth, pharynx and larynx. Radium costs more than roentgen apparatus, but there is no appreciable deterioration. While its effects may be easily confined to small areas, it has the disadvantage of requiring much longer exposure, the average treatment requiring four hours per area. Furthermore, the use of radium is not so alarming to nervous persons, and patients in poor condition do not have to be transported to some special place for treatment. Coagulation and necrosis are produced painlessly by radium. Altogether, it would seem that in many ways radium bears comparison with roentgen rays most favorably.



Sarcoma of tonsil, × 375 diameters.

Complications.—Lannois, Sargnon and Moutet report as complications in the use of radium, perforation of the hard palate which occurred in one case; the uvula dropped off in three cases of epithelioma of the tonsils. They call attention to the fact that while radium burns are usually unimportant, they may cause gangrene, particularly if they occur in the larynx. Knox states that the dangers from radiations are acute dermatitis or chronic dermatitis, the latter being at times very intractable, lasting indefinitely and sometimes becoming malignant. Among the late manifestations that may occur are telangiectases or ulcerations, which may be very painful. James Ewing quotes F. C. Wood to the effect that the toxicity which is sometimes observed is due to escaped radiation affecting the bone marrow, liver or other organs. Dr. Joseph C. Beck, reported a case at the February, 1920, meeting of the Chicago Laryngological Society in which toxemia resulting from the use of a large dose of radium apparently caused the death of the patient:

> A man, aged 47, suffering from carcinoma of the larynx, received 150 mg. of radium treatment applied to the skin in the region of the larynx for twelve hours (1.800 mg. hours) the day before the laryngofissure was performed. Then two 12.5 mg. radium needles were inserted at the line of incision for four hours (100 mg. hours). Before leaving the table the patient vomited, and a few hours later developed a dyspnea which was not relieved by laryngeal suction. A rapid pulse and cardiac asthenia developed which was uninfluenced by large doses of digitalis. Death occurred forty-eight hours after the operation.

Through the kindness of Dr. Beck I was permitted to see the notes of a paper now in preparation in which he and Dr. Gradwohl are investigating the blood chemistry in reference to toxemia caused by the action of massive doses of radium in malignant disease. They have found that creatinin in the blood is doubled in amount twenty-four hours after radiation. To quote from their paper:

"There appears to be a toxemia which is developed in cases of malignant disease wherein large doses of radium and roentgen rays are employed, which differs from the ordinary toxemia found in cancer, or toxemia from the use of roentgen rays and radium in nonmalignant disease."

Fordyce[21] reports a case in which one year after use of radium the patient had a palm-sized second degree burn over the face, neck and a large part of the scalp, together with telangiectasis, alopecia and loss of pigmentation.

MacKee[22] cites a case in which a radium dermatitis was followed by death; the patient received several intensive radium treatments with the idea of affecting the deeper tissues and sparing the skin, using thick lead filters. Several weeks later there was severe abdominal pain, then swelling, hyperemia, ulceration and death. MacKee thinks that there was radium inflammation of the deep tissues with later necrosis and death from exhaustion.

Kelly,[23] describes a case of nasopharyngeal neoplasm dispelled by radium in which 50 mg. of radium screened by 2 mm. of silver and covered with 2 mm. of rubber was used. The patient suffered greatly for a week from ulceration of the palate and fauces.

20. Weed, W. A.: Present Status of Local Application of Radium and X-Ray, New York M. J. 107: 495 (March) 1918.

21. Fordyce, J. A.: J. Cutan. Dis., April, 1919, p. 252.
22. MacKee: Case of Radium Dermatitis Resulting in Death, J. Cutan. Dis., April, 1919, p. 253.
23. Kelly, A. Brown: Nasopharyngeal Neoplasm Dispelled by Radium, J. Laryngol., Rhinol. & Otol., August, 1916; abstr., Laryngoscope, April, 1917.

Dr. J. C. Beck, in discussing Dr. Stein's[24] case, mentioned a patient with sarcoma of the hard palate cured in two weeks with massive doses of radium, but with the result that there was very severe burning of the tongue and soft palate.

Considering the many cases of severe injuries following the use of roentgen rays, one is somewhat surprised to find so few instances of complications following radium applications. Whether the toxemia which may result from the radiation was ascribed to other conditions in the patients cannot be determined: but the possibility of serious results must be borne in mind when applying radium. Superficial burns are of no great moment, as they usually heal quickly; but deep burns, such as occurred in our case, may seriously affect the patient by the pain caused, or by interference with the swallowing of food. In some instances the after-effects of radiation may even cause death.

RESULTS OBTAINED

Lannois, Sargnon and Moutet report cure in six out of sixteen malignant tumors of the tonsils, in nearly all of six cancers of the nose, and in four cancers of the nasopharynx.

Boggs says: "The value of radium in mouth and throat is incontestable; as a curative and palliative it surpasses all." He reports a case in which the entire throat was filled with sarcoma, but which remained cured for three and a half years after treatment. He also cites a case of sarcoma in which three operations were followed by rapid recurrence, but within six weeks after radium was used the growth disappeared, although it had filled two thirds of the pharynx.

Botey[25] says that superficial epithelioma of the nose is usually cured in six exposures of from thirty to sixty minutes, but he does not give the dosage. He further states that "in laryngeal carcinoma large doses for a few hours are much more effective than small doses for many hours, but large doses produce too much secondary reaction, the deeper cells are not destroyed but stimulated, and metastases and recurrence are much more frequent than after radical operation."

Stein reports sarcoma entirely filling the right nares arising from the ethmoid cells. He used 100 mg. of radium for five hours on three consecutive days and repeated the dose nineteen, thirty and sixty days later, using a total of 4,100 mg. hours, and 2,125 mg. hours applied to the enlarged lymph glands. The immediate results were excellent, with cessation of all pain and hemorrhage in one week. There was entire disappearance of the tumor and restoration of normal breathing. Perforative appendicitis caused death four months later, but at postmortem there was no evidence of sarcoma or metastases in the abdomen, nasal fossae, ethmoids or frontals. Dawson Turner reports a case of chondrosarcoma involving the left maxillary antrum in a 6 year old boy treated with 1,440 mg. hours of radiation. There was no recurrence within two years. He agrees with Knox that "maximum dose should be given at the first treatment."

Simpson[26] mentions an epithelioma involving the tongue, medial glossal epiglottic fold and left vallecula treated with three radium needles inserted into the growth by a special introducer and left for eight hours. There was complete healing in six months and the patient had remained well for over a year.

Greenough[27] reports thirty-nine cases of cancer of the lip, of which nineteen received radium treatment; in four the tumor disappeared, four were improved, and eleven showed little or no improvement. Out of eight cases of carcinoma of the palate, seven of the tonsil and five of the buccal muscosa, twenty in all, twelve had radium, but none showed more than a temporary improvement.

Adam[28] cites an epithelioma of the nasopharynx treated with 50 mg. of radium, screened by 1 mg. of gold for twenty-three hours. In two weeks the tumor was all gone except a small round mass near the eustachian orifice.

Collier[29] reports a case of large round-cell sarcoma of the nasopharynx treated for twenty-four hours with 150 mg. of radium. Seven days later necrosis began and recovery followed.

J. C. Beck[30] states that carcinoma of the nose, mouth and throat invariably terminate fatally, no matter what form of treatment is employed.

New[31] reports radium used in malignant tumors of the nose, nasopharynx, tonsils, larynx, etc., and concludes that "immediate results are very encouraging, but permanent cures are probably very few. Any neoplasm which is surgical should be treated as such and the radium used as an adjunct."

Hanford cites a tumor of the tonsil which had caused a loss of 40 pounds in weight; 150 mg. of radium were stitched in the cavity and left for nine hours. Two days later the same amount was again inserted and left for five hours; a few days later another six hour dosage was used, making a total of 3,600 mg. hours in five days. There was great improvement in twelve days.

Clark[32] has never seen benefit from radium or roentgen rays alone in cases of carcinoma of the oral cavity, but considers them merely as adjuncts. He reports 200 cases of malignant disease of the oral cavity, etc., treated with electrothermic methods or in combination with surgery, roentgen rays and radium. Of these patients a very large percentage were apparently cured for long periods of time, a smaller number had recurrences, and a still smaller percentage died. I am not in a position to discuss the relative value of the electrothermic method, except to say that in the hands of a master like Clark it seems to give excellent results.

Barajas, in fifty-six cases of laryngeal cancer, noted great improvement for a time but not one complete cure following the use of radium. He says, however, that the analgesic effect of radiation even in moderate doses constitutes an important benefit.

Delavan[33] quotes the Royal Infirmary report of

24. Stein, O. J.: Case of Nasal Sarcoma Cured by Radium, Practical Medicine Series 3, 1918; Ann. Otol, Rhinol. & Laryngol., September, 1917.

25. Botey, R.: Radium in Cancer of Upper Passages, Rev. Española de méd. y cir., December, 1918; abstr. Laryngoscope April, 1919.

26. Simpson, F. E.: Cancer of Base of Tongue and Epiglottis, S. Clin. 1:63, 1919; Internat. Abstr. 28 (July) 1919.

27. Greenough, R. B.: Radium in Treatment of Buccal Mucoso Carcinoma, Boston M. & S. J., May 2, 1918; abstr. Laryngoscope, April, 1919.

28. Adam, James: Endothelioma of Nasopharynx Apparently Cured by Radium, J Laryngol., Rhinol. & Otol., August, 1916; abstr. Laryngoscope, April, 1917.

29. Collier, C. C.: Sarcoma of Nasopharynx Treated with Radium and Mesothorium, J. Ophth., Otol. & Laryngol., October, 1916; abstr. Laryngoscope, April, 1917.

30. Beck, J. C.: Management of Malignant Disease of Upper Respiratory Tract, Ill. M. J. 32:194 (Sept.) 1917.

31. New, G. B.: Canadian Med. Quarterly, May, 1919.

32. Clark, W. L.: Cancer of the Oral Cavity, Jaws and Throat, J. A. M. A. 71:1365 (Oct. 26) 1918.

33. Delavan, D. B.: Radium in the Field of Laryngoscopy, Med. Rec. 90:50, 1916.

1915 to the effect that "while in advanced cases of cancer cure may not have been effected, in practically all more or less relief was obtained through the diminution of pain, cessation of discharges, healing of ulcerated surfaces, removal of local growths and prolongation of life."

Moore [34] reports sarcoma of the antrum greatly aided by radium.

Roy [35] refers to cases reported by Hastings,[36] Martineau,[37] Tilley [38] and Patterson [39] in which sarcoma of the nasopharynx was cured by 40 mg. doses of radium bromid inserted in the growth for twenty-four hours.

SUMMARY OF RESULTS OBTAINED BY VARIOUS AUTHORS

	Apparently Cured	Free One or More Years	Improved	Unimproved	Total
Nose and sinuses	13	2	14	12	41
Nasopharynx	12	..	..	..	12
Pharynx, palate and tonsils	20	4	14	27	65
Mouth and tongue	10	2	30	54	116
Larynx	8	..	14	82	104
Upper jaw and cheek	8	4	14	12	38
Lip	16	8	16	23	63
Total	87	20	122	210	439
Percentages	17	4	24	42	

Janeway [40] concludes that radium as a palliative agent in advanced cases has a limited field of usefulness in producing retrogression of tumors, with relief of pain. In some forms, however, there is later an extension which may be quite as painful as before. A complete clinical retrogression, however, is not a cure; by many surgeons it is considered necessary to wait for from three to five years before declaring a case entirely cured. He considers radium useful as a preliminary measure before operation to control the activity of the growth. He reports three epitheliomas of the nasal mucosa which showed improvement in one instance and no improvement in two others. There were twenty-four epitheliomas of the lip; six were cured; four free from recurrence for one year or longer, six improved, and one still under treatment. There were twenty-five cancers of the superior maxilla of which four were clinically cured, two free one year or more, eleven improved, two still under treatment, and nine unimproved. There were eleven neoplasms of the cheek; of these four were cured, two free from recurrence over one year, three improved and three unimproved. There were twenty-six cancers of the tonsil, of which six were cured, two free for over a year, fourteen improved and six unimproved. There were fifty cancers of the tongue, of which four were cured; two free from recurrences for over a year; twenty-two improved, and twenty-four unimproved. There were twenty-seven cases of cancer of the larynx, of which four were cured, seven improved and sixteen unimproved.

As this paper deals primarily with the use of radium, the accompanying summary of the results obtained by the various authors is compiled of those case reports in which radium was the main form of treatment employed. This, therefore, does not include the large list reported by Dr. W. L. Clark, in which the electrothermic method was mainly relied on. Of the cases tabulated, many were still under treatment when reported by the authors. Some writers merely speak of "malignant" disease of certain tissues or structures so that it is impossible to state whether they were carcinomas or sarcomas. We have, therefore, not been able to differentiate in the table. In general, it was the sarcomas that gave most favorable results, especially those of the nasopharynx, while in tumors of the tongue and larynx in which carcinoma predominated, the results were usually unfavorable. Since many of the authors fail to state whether death occurred, the percentages are not entirely accurate.[41]

CONCLUSIONS

1. The future of radium therapy seems very bright, particularly in reference to applications in tumors of the nose and throat; but great caution is advisable in statements regarding actual cures. It is important to watch for recurrences during a period of from two to five years.

2. In reporting cases, authors should give details of the preparation used, the method of application, duration of exposure, etc., in radium treatments.

3. Following up the cases and reporting on them again whenever possible is of the utmost importance in the formulation of definite conclusions regarding the results of radium treatment.

4. Radium is probably of great value before, and certainly after operations. It is very efficient in relieving pain, hemorrhage, discharge, etc. in many inoperable cases.

5. Sarcomas are especially responsive to radiation; the carcinomas yield much less readily, and the squamous type of epithelioma is scarcely amenable to radium at all.

6. Complications, at least those reported, are not so frequent as one would be likely to expect. Burns were the most common ones, but even death may result from toxemia.

7. Radium has many advantages as compared with roentgen rays, especially for application in the nose and throat.

8. The diagnosis of the malignant cases should be made by a competent laryngologist, and the radium applied either by him or in cooperation with a radiologist. Only in this way will correct statistics and reliable results be obtained, with greatest benefit to the patient and the safest guidance to the profession.

29 East Madison Street.

34. Moore, Irwin: Case of Sarcoma of Maxillary Antrum, Proc. Royal Soc. Med., Sect. Laryngol. **12**: 210, 1919.

35. Roy, Dunbar: Sarcoma of Nasopharynx, Tr. Am. Laryngol., Rhinol. & Otol. Soc., June, 1919.

36. Hastings, S.: Case of Sarcoma of Nasopharynx Treated by Radium Emanations, Proc. Roy. Soc. Med., Laryng. Sec. **32**, 1913-1914.

37. Martineau, A. J.: Case of Sarcoma of Nasopharynx Treated by Radium Emanations, Proc. Roy. Soc. Med., Laryngol. Sect. **32**, 1913-1914.

38. Tilley, Herbert: Proc. Roy. Soc. Med., Sect. Laryngol. **12**: 210, 1919.

39. Patterson, Norman: Carcinoma of Right Antrum and Orbit, Treated by Excision, Radium and X-Rays, Proc. Roy. Soc. Med., Sect. Laryngol. **12**: 194, 1919.

40. Janeway, H. H.: Radium Therapy in Cancer, New York, Paul B. Hoeber, 1917.

41. In addition to the references already given, the following will be found of interest:

Dawson, G. W.: Sarcoma of Tonsil, Proc. Roy. Soc. Med. London, Sect. Laryngol. **12**: 210, 1919.

Hall, C. C., and Whipple, G. H.: Roentgen-Ray Intoxication: Disturbances in Metabolism by Deep Massive Doses of the Hard X-Rays, Am. J. M. Sc. **157**: 453, 1919; abstr. Internat. Abstr., August, 1919.

Holding, A. F.: Cancer Amelioration and Cancer Immunity, Madison, Wis., 1920.

Patterson, Norman: Sarcoma of Nasopharynx, Proc. Roy. Soc. Med., Sect. Laryngol., 1915-1916, p. 61.

Pfahler, G. E.: Treatment of Malignant Disease by Combined Methods, Pennsylvania M. J. **22**: 307 (Feb.) 1919.

Duncan, Rex: Observations and Results in Four Hundred Radium Cases, Med. Rec. **94**: 617 (Oct. 12) 1918.

Schmitz, H. C.: Biological and Therapeutic Action and Clinical Value of Radium and X-Rays, Charlotte M. J. **79**: 161, 1919.

Tilley, Herbert: Case of Sarcoma of Nasopharynx Treated by Radium Emanation, Proc. Royal Soc. Med., Laryngol. Sect. **32**, 1913-1914.

Young, W. J.: Some Phases of Roentgenology and Radiotherapy, Am. J. Surg. **32**: 228 (Sept.) 1919.

ABSTRACT OF DISCUSSION

Dr. William B. Chamberlin, Cleveland: I have had some rather unfortunate experiences with regard to papillomas in children. In a recent case I used 50 mg. of radium for twenty minutes. This had been successful in a number of cases of papillomas in adults. It seemed that the papillomas recurred rather more quickly than they had previously after operation where radium was not used. In one case I used 50 mg. of radium in a small rubber tube (the child had previously been tracheotomized) and left it in for five hours. The child left the hospital with the tracheotomy tube out and breathing freely. How soon the papillomas will recur or whether they will recur, I do not know.

Dr. Cullen F. Welty, San Francisco: In Dr. Clark's clinic I saw many carcinomas in the process of recovery or cure. These cases were largely of the face; some were of the mucous membrane of the cheek and some of the nose. I did not see any eye cases. This gave me the idea that the plan was feasible in accessory sinuses and larynx cases. I first did a tracheotomy, opened the larynx and removed the growth by fulguration. I did this in three different cases, but the patients died. However, I believe I did not use sufficient strength in my current and did not get the mass entirely away, because I had done some other work with the high frequency current and it had been most satisfactory. In a case of carcinoma of the floor of the mouth that had been treated by radium and the roentgen ray over a period of two years, the high frequency current was very satisfactory in the removal of the tongue, but the man died the second day after from pneumonia. A man with cancer of the larynx went to Philadelphia for radium treatment. He returned with a perfectly good larynx, but with some marks similar to perichondritis. I saw him two years afterward. He had real carcinoma of the larynx without doubt. In a case of carcinoma of the false vocal cords I used radium. The growth has not increased in size; it remains just about the same as it was, but the man has no trouble from it and I have reason to believe that it has been arrested. This was done four months ago. A man who had lost his eye from the use of radium was cured by the use of the high frequency current. A patient with epithelioma of the lip and cheek has had radium treatment for a year and a half, without benefit. It required the taking away the lip above and below, and the whole of the cheek. He is now well; that is, everything is closed up, the cancer mass is gone. He has been out of the hospital for about four months. The high frequency current offers so much that I can recommend it, but to use this current you must have seen it used by an expert for some time before your technic will fit the individual case.

Dr. Joseph D. Heitger, Louisville: A colored woman gave a history of tonsillitis beginning about a year previously, and a swelling of the glands on the right side of the neck for about a month. When I saw her she could hardly talk, the tongue was thrust forward, but the glands on the left side of the neck were not enlarged very much. The Wassermann test was negative; the general physical examination was negative with the exception of a slight secondary anemia. November 17 the case, from a surgical standpoint, appeared to be practically inoperable. The throat on the right side had what I thought was a papilloma with a concave surface into which the left tonsil fitted, and just below that, next to the tongue, was a small triangular area through which she breathed. She was unable to eat any solid food. November 17, we used 50 mg. radium screened through 1 mm. of brass and 1 mm. of silver; two hours' exposure over each area. November 18 we used 50 mg. screened through 1 mm. of silver. The radium was poured into the right tonsil in three areas, four hours for each; the left tonsil, two areas, four hours each. Nothing further was done. March 23, 1920, the throat did not show that anything had ever been the matter with it. The enlarged glands had disappeared. That day eight areas, four on each side, were again mapped out and given a three-hour exposure with 50 mg. screened through 1 mm. of brass and 1 mm. of silver. Just what the final outcome of this case will be remains to be seen. There is a possibility, on account of the case being bilateral, that while the pathologic report was lymphosarcoma, it may be a localized Hodgkin's disease.

Dr. G. E. Pfahler, Philadelphia: I have patients who have had recurrent malignant disease of the maxillary sinuses, some for as long as sixteen years, not treated with radium but with the roentgen ray. I have used radium for ten years, and I believe we can accomplish a great deal, probably more than by any operative method. I believe we should use the roentgen ray with radium. We should place radium within the tumor tissue. About eight months ago I saw a patient with a carcinoma involving the maxillary sinus and extending through the ethmoid cells back to and including the sphenoid sinus. I introduced into the maxillary sinus 50 mg. of radium in 0.5 mm. of gold, which is equivalent to 1 mm. of lead, surrounded by 1 mm. of rubber, and left it there for twenty-four hours. I applied 50 mg. on the left side in front of the maxillary sinus, filtered through ½ mm. silver, 1 mm. of brass and 2.5 cm. of felt, and then I placed on the outside another 50 mg. filtered in the same way. I know from experience that each one of those pieces of radium will produce an erythema in twenty-four hours, and that means that I have gone the limit with that amount of radium. I know also that it will kill the cancer tissue in that area, but it will not reach the disease in the ethmoid and sphenoid cells. They are too far away. To help in that area I placed radium in the posterior nares. That will reach, perhaps 2 or 3 cm. of the area back of the maxillary sinus, but it will not reach the disease in the sphenoid sinuses, therefore I had to reach that area with the roentgen ray. I crossfired from every possible angle. I saw the patient last week and so far as I can determine the disease is gone. I do not know for how long. Other patients have remained well as long as sixteen years. The fact that I was able to make the disease disappear leads me to believe that by carefully treating this patient at longer and longer intervals I shall be able to control the disease and keep him well. In a number of cases of sarcoma involving the posterior nares I have succeeded in causing the disappearance of recurrent sarcoma. We can get results in many of these cases, but we ought to be more careful about reporting our technic and the accuracy of our results. In that way we can help each other and get more of these patients well. In regard to electro-coagulation, I have treated hundreds of patients by this method, but we must go very carefully in cases involving the air passages and accessory sinuses. I have had some patients die of secondary hemorrhage, but they all die anyway, so I have not been very enthusiastic.

Dr. S. G. Higgins, Milwaukee: There is definite value in the use of radium, but the difficulty is the limited supply in this country. The government should require that radium found in the United States should not be exported. In the case of a child with sarcoma, operated on two years ago and again for recurrence after one year, the disease has been held in check by the use of radium and by crossfiring with the roentgen-ray intranasally from the outside. The child has done better under radium therapy than under roentgen-ray therapy. The roentgenologists and the rhinologists should cooperate in the use of radium and the roentgen ray.

Dr. Albert F. Tyler, Omaha: These patients with malignancy in the nasopharynx and accessory sinuses deserve the maximum amount of help, no matter what the treatment may be, therefore, why should we recommend one method of treatment to the exclusion of all others which have proved of decided benefit. Dr. Pfahler is right. We should use radium with the roentgen ray, using the maximum dose with the highest possible filtration. In selected cases we can use electrocoagulation. It is dangerous to cut into these growths, especially a sarcoma. These patients had better be referred for radiation without surgical mutilation. Our results will be better.

Dr. Robert Sonnenschein, Chicago: While it is true that clinically multiple papillomas in children act like malignant growths, yet considering their histology we do not classify them as malignant tumors. Dr. Welty spoke of Dr. Clark's method. I mentioned that in the paper, and also said that Dr. Clark stated that he thought that that method should be applied which best fitted the case and would give the greatest

relief to the patient. As to Dr. Heitger's case, radium has a great effect on enlarged glands such as those found in Hodgkins disease. Dr. Pfahler calls attention to the fact that erythema is a sign of maximum reaction. If you get a reaction, you must stop for some time. I think Dr. Higgins' statements regarding the retention of radium in this country, and the cooperation of the rhinologists and radiologists, is most apropos.

CLOSURE OF FISTULOUS OPENINGS THROUGH ALVEOLAR PROCESS INTO ANTRUM OF HIGHMORE *

CULLEN F. WELTY, M.D.
SAN FRANCISCO

A man, aged 35, had had a tooth extracted ten years before. The antrum of Highmore became infected, and had continued to discharge through a fistulous opening of the alveolar process ever since. The patient's favorite way of cleansing the antrum was to take water into his mouth and force it

Fig. 1.—Teeth in place; relation of alveolar process to antrum of Highmore.

through the opening into the nose. This was repeated until the wash water returned clear. Repeated attempts had been made to close the fistulous connection, but without success. Three days before I saw the patient, he had suffered an acute exacerbation of the antrum infection which profoundly infected him. He was having chills and fever, and was quite uncomfortable. During this time, he could not force solutions through the fistulous opening.

The patient was in good physical condition; the temperature was 104; he had had chills and chilly sensations for the last forty-eight hours. The right side of the nose was full of pus of a foul odor; there was deviation of the septum to the same side. There were no hypertrophies or polypi. The fistulous opening was located, and the sinus washed for diagnostic purposes. Two teeth had been extracted at the site of the fistula. I recommended that the patient have the radical antrum operation, septum operation and the tonsils removed. I will not speak further of the septum and tonsils, as they were corrected and had no further bearing on the case.

The antrum of Highmore was very large, and was almost completely filled with polypoid masses and offensive pus; one end of a root of a tooth that had not been extracted was lying almost loose in the polypoid mass on the floor of the antrum. Two other roots of the same tooth were projecting into the cavity, uncovered and carious. The alveolar process at this place had so atrophied that there was very little left. However, I extracted this tooth, which joined the fistulous opening

Fig. 2.—Depth of alveolar process and relation of teeth.

before spoken of, hoping to have the surfaces adhere, closing my operation in the usual way. In the course of three weeks, the antrum was well; however, the fistulous opening was larger than ever; with curettage and various applications, the opening seemed to grow larger. At this time, I had a roentgenogram of the jaw made and found that the remaining tooth on this side had a tooth-root abscess, and the side that adjoined the fistulous tract was entirely uncovered. While this tooth was being cared for, the fistulous opening was made larger still, with no tendency to heal at all.

It occurred to me that a device similar to the cleft palate operation was the only procedure that could close the antrum permanently, so I devised the following procedure: Under general anesthesia, an incision was made at each end of the fistula on the outer side of the alveoli, and carried well up to

Fig. 3.—Alveolar process on each side removed; mucous membrane and periosteum lying loose.

where the bone had been removed in the antrum of Highmore operation. Periosteum and mucous membrane were removed from the alveolus, and afterward the whole of the outer border of the alveolus, into the antrum of Highmore. A similar incision was made on the inside at each end of the fistula, periosteum and mucous membrane elevated from the bone, and the bone removed. By this time, I had an opening an inch and a half long, into which I could easily put my finger and enter the antrum of Highmore.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

An incision was now made in the median line of the hard palate its entire length and the periosteum elevated over the entire area. It is easy to understand that by this procedure all tension will be removed when sutures are introduced. That the sutures may not cut the tissue, two perforated lead disks are used on each side and the sutures tied rather snugly. This can remain for ten days, when it will be found that the union has been complete and the patient will be very well satisfied.

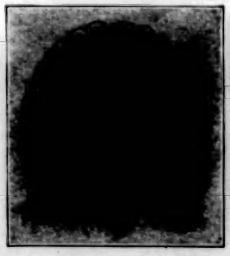


Fig. 4.—Incision and elevation of periosteum and hard palate, and incision from each side of fistula.

I have had a second case somewhat similar, with very satisfactory results.

I report this case in detail, because I know there are many persons about the country suffering from a fistulous communication with the antrum of Highmore who can be readily cared for in the way I have described. However, I must insist that the radical operation for the antrum of Highmore be performed, preferably with the modification I have described, and brought to a successful issue before the latter is attempted.

ABSTRACT OF DISCUSSION

Dr. Joseph A. Stucky, Lexington, Ky.: This operation is entirely new to me. I have seen cases of fistula from the antrum of Highmore, but I have never had to resort to anything quite as extensive as this procedure to close it. I wonder if the simple procedure I have followed would have removed the focus of infection above and thus got rid of the cause of the fistula. I have curetted the fistulous tract in many cases, and the results have been very good. I do not recall ever having a case in which I had any trouble in closing the fistula leading from the antrum. In complicated cases, in cases of osteomyelitis with antrum trouble, if I do not remove the source of infection above, I might be tempted to try this method and drain throught the nose. The method is unique and is to be considered.

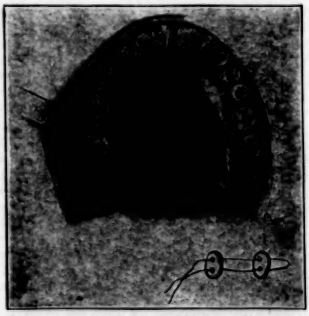


Fig. 5.—Wound approximated and held by metal plates; suture extending through tissues instead of over them, as shown in the elevation.

Dr. Joseph C. Beck, Chicago: There is nothing in plastic surgery that gives as much trouble as the closing of an opening as described by Dr. Welty, and if he can close it by this very rational method, then he has added a great deal to our technic.

Dr. Cullen F. Welty, San Francisco: Up to the present time I have been able to cure my fistulas by removing the infection from the antrum of Highmore, as have most of you, but sometimes we encounter cases that resist everything. I suggest this operation for these cases.

A NEW OPERATION FOR THE RELIEF OF DACRYOCYSTITIS THROUGH THE NASAL ROUTE*

MEYER WIENER, M.D.
AND
WILLIAM E. SAUER, M.D.
ST. LOUIS

Operations for the relief of inflammation of the lacrimal sac or stenosis of the lacrimal passage are almost as old as the history of medicine. In fact,

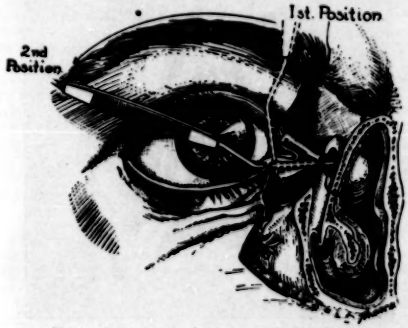


Fig. 1.—Path of probe from time of its introduction.

Galen himself advocated breaking through the lacrimal bone and introducing a caustic to prevent closure of the newly made opening. Operation by the intranasal route, however, is comparatively recent, and was first popularized by the work of J. M. West,[1] who presented before the American Ophthalmological Society in 1910 a method, the essential feature of which was the making of a large opening or window into the nose at the lower end of the duct, and extending the opening laterally to its apex. Later he modified the technic, which he thus describes:

A number 4 probe is passed through the dilated punctum as a guide and then, by means of a small bevel-edged chisel, a portion of the lacrimal bone and superior maxilla is removed just above the inferior turbinal, forming a large opening in the duct. It is necessary to use care to avoid opening the maxillary sinus. Local anesthesia is used. Structures below the window opening are unimportant, as tears will drain through the window, while any stenosis up in the duct is removed by the operation.

* Read before the Section on Ophthalmology at the Seventy-First Annual Session of the American Medical Association, New Orleans, April, 1920.

1. West, J. M.: Tr. Am. Ophth. Soc., 1910, p. 654.

Toti [2] had previously devised a more complicated and difficult operation by making a large incision from the skin side. The skin incision is elliptical, from 3 to 3.5 cm., the concavity toward the inner canthus and 3 mm. outside the tendon attachment of the orbicularis. Incision begins at the junction of the posterior lacrimal crest with the orbital process of the frontal bone, curving downward and toward the nose, until beyond the tendon, when it again curves outward and downward to the level of the beginning of the bony lacrimal duct. The periosteum is raised on that side of the mucosa toward the eye only; and after the lacrimal fossa has been uncovered, this area is swabbed dry and covered with tampons of epinephrin and cocain 20 per cent. The nose is next anesthetized. The bony margin of the orbit at the border of the lacrimal fossa is first resected; then the bony floor of the lacrimal fossa itself is resected away, posteriorly to the posterior crista lacrimalis, inferiorly to the lacrimonasal duct, and superiorly to the curved elongation of the crista lacrimalis. The mucosa should be preserved intact.

Fig. 2.—Direction of probe as it is forced into nose from bottom of sac.

If the ethmoidal cells are encountered, they should be cut away. The nasal mucosa is forced into the bony opening after the bony margins have been smoothed off, and an opening is made to correspond with the posterior wall of the lacrimal sac. After the sac wall has been cut away, the sac is replaced and the skin sutured. The nasal mucosa is now held in place against the lacrimal sac by tampons of iodoform gauze. In this way the bony walls of the lacrimal sac are covered with mucosa, and healing without constriction of the opening is assured.

Salus [3] reported twenty-nine cases in which operation was performed by the Toti method, there being thirteen perfect results, with no tearing or irritation of the conjunctiva. In eleven there was no epiphora under ordinary conditions, but insufficient drainage; while in five cases there was no improvement at all. Török [4] reported nine cases with six resulting in perfect drainage, two with moderate tearing out of doors, and one with tearing, but no secretion.

Kuhnt [5] modified the Toti procedure. He does not cut out the piece of nasal mucous membrane corresponding to the removed medial wall of the tear sac,

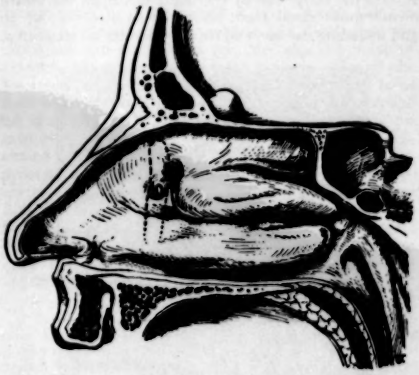


Fig. 3.—Position of probe as it emerges just anterior to middle turbinate. Dotted line is sac and duct.

but forms a flap of it whose base is exactly applied to the resected margin of the frontal process.

Cirincione,[6] in 1904 isolated the sac with the canaliculi, bored anteriorly to the lacrimal ridge, made sure of its freedom of communication into the nose, and

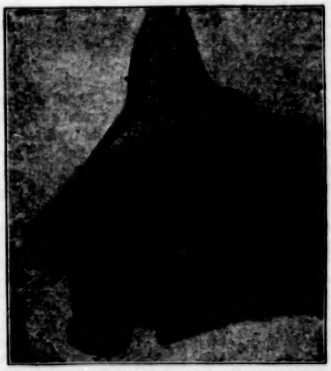


Fig. 4.—As probe is slowly withdrawn, under blade of forceps is slipped in and bony wall and mucous membrane of nasal wall of sac is removed.

pushed the lower portion of the sac into this new opening. He thus utilized the lining of the sac as a lining for the new opening. The points wherein his operation differs from Toti's are that he removes the sac and its intra-osseous continuation; he leaves only a small part of the anterior wall, just where the canalic-

2. Toti: Clin. mod. N. O. **38**, 1904.
3. Salus: Klin. Monatsbl. f. Augenh., July, 1911, p. 54.
4. Török: Arch. Ophth., May, 1911, p. 237.
5. Kuhnt: Ztschr. f. Augenh. **21**: 379.
6. Cirincione: System of Ophthalmological Operations **11**: 1603.

ulus opens into it, and he makes his new bony canal farther forward in the nasal portion of the superior maxilla alone.

Yankauer [7] makes a temporary elevation of the mucous membrane of the outer wall of the nasal wall, resects the bony wall of the duct, slits open the entire membranous canal from below its nasal orifice up to and including the sac, and thereby divides all strictures,

Fig. 5.—Sac is pushed through opening with probe, grasped with tenaculum and large piece punched out.

destroying the venous plexus surrounding the canal, and evacuating the pus. Finally, he replaces the mucous membrane of the outer nasal wall. The result of the operation is enlargement of the bony membranous passages, and the reestablishment of drainage in the manner originally designed by nature.

Halle's [8] method is similar to West's. A circular piece of mucous membrane with its underlying periosteum about the size of the sac is removed from near the anterior attachment of the middle turbinal directly over the torus lacrimalis. A mucous flap is then made and turned back with a chisel or burr; bone is then removed over the sac. A probe is pushed through the canaliculus and sac, and the sac is pushed into the nose and cut off. The mucous flap is then put into position.

Polyak's [9] procedure is also similar to the West operation except that the upper part of the nasal duct is opened and the membranous canal and the limitation of the sac defined.

Schoch [10] slits the canaliculus, enters a small drill into the canal as far as the nasal wall, and mills it between the thumb and fingers at an angle of 75 degrees, piercing the bone until the nostril is reached.

Holmes,[11] after cocainization of the anterior portion of the middle fossa, makes a vertical cut through the mucous membrane. This is elevated both forward and backward. Then, with a curet, the bony wall of the duct and sac are removed with the outer mucous membrane. A probe is then passed through the new opening into the middle fossa of the nose. He then passes a piece of wire through the nasal opening into the duct, upward, as the probe is withdrawn from above. The wire is worn three weeks.

Prince [12] begins with local anesthesia of the sac and corresponding area in the nose. He opens the punctum, passing a canaliculus knife to the sac, and then passes a lacrimal groove director through the sac into the nasal canal, slitting the canaliculus and passing the largest possible lacrimal probe. Then he passes a gouge 4 mm. wide to the bottom of the sac. By pressing toward the nose it will enter the middle meatus and may be readily seen from below. The gouge is now removed and a strip of sheet lead, 3 mm. long, 4 mm. wide and 1 mm. thick is introduced, with the point slightly tapered. While observing the end of the plate through the nose, the operator withdraws it until it almost disappears. Then it will be found that the nasal wall of the sac, together with the corresponding portion of the lacrimal sac, will rest on the extremity of the lead plate. By grasping the end of this with appropriate forceps, one will be able to remove the inner wall of the sac, the thin lacrimal bone and the end of the strip of lead at the same time, and thus establish permanent drainage.

Moretti [13] introduces to the strictured point, through an opening made directly into the sac, a probe with a platinum tip. This tip is brought to red heat by the current and cauterizes the stricture, freeing the canal.

Pratt [14] makes an incision into the sac, starting at the upper canaliculus. A dental burr is now introduced and a hole bored into the nasal cavity. This, with modifications, has been taken up by Green [15] and others.

O'Kunneff first removes the anterior third or half of the inferior turbinate to expose the nasal opening

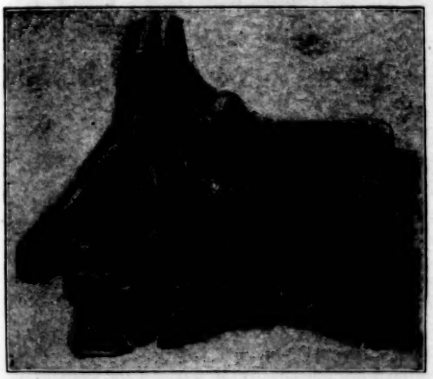


Fig. 6.—Appearance of nasal window into sac, on completion.

of the lacrimal canal. He next frees the canal by introducing one branch of special scissors forceps, cutting the bony wall with the other blade. The operation is contraindicated in bony lesions, abundant

7. Yankauer: Laryngoscope **22**: 1331, 1912.
8. Halle: Arch. f. Laryngol. **28**: 331.
9. Polyak: Ophthalmoscope, June, 1915.
10. Schoch: System of Ophthalmological Operation **2**: 1593.
11. Holmes, E. M.: Ann. Otol., Rhinol. & Laryngol. **23**: 286.
12. Prince; American Encyclopedia of Ophthalmology **9**: 6980.
13. Morretti: Rec. d'ophth., September, 1908.
14. Pratt: Ophth. Rec., April, 1915.
15. Green, John, Jr.: Discussion on Thompson, W. R.: The Rational Etiology and Satisfactory Treatment of Dacryocystitis, J. A. M. A. **71**: 1729 (Nov. 23) 1918.

purulent secretion, ectasia of the sac, and extensive obliterative changes of the mucous membrane.

Blakesley,[16] after cocainizing the sac and corresponding mucous membrane of the nose, injects cocain into the skin and makes a vertical incision one-quarter inch in length over the sac at its mesial margin, entering into the sac at its nasal attachment. Through this opening a specially constructed trephine, with a diameter of from 2 to 3 mm., is introduced into the sac, held in a dental right angle, and operated by a small motor with foot control. This is directed down and in, toward the torus. The ceasing of resistance indicates its passage into the nose. It is then withdrawn and the process repeated until the whole nasal floor of the sac is removed. The operation requires only a few minutes' time.

Graham and Patton[17] remove a small circular piece of mucous membrane from the outer wall of the nostril opposite the end of the middle turbinate. A rectangular flap of membrane, including this hole, is then turned backward and upward and the bone forming the inner wall of the tear-sac is chiseled away. A probe is then passed in the tear-sac through the lower canaliculus, and pushes the wall of the sac through the bony opening. This bulge is then snipped away. When the flap of nasal mucous membrane is put back into position, the holes in the sac walls, bone and nasal membrane coincide. A strand of strong catgut or thin lead wire is passed through the lower canaliculus, through the new passage and out of the nose to help keep the flaps in position and opposite one another while healing takes place. The nose is plugged for the first two or three days.

Patterson and Fraser[18] make a D-shaped opening over the surface of the frontal process of the superior maxilla, with curved portion anteriorly, just in front of the end of the middle turbinate. This is raised with the elevator and removed, exposing the inner surface of the frontal process over an area one-half the size of a finger nail. The bone in this area is removed with a gouge and hammer, exposing the lacrimal sac. A probe is then passed into the sac, an incision made and then this piece punched out. They found no tendency to the formation of crusts. Twenty-four cases were reported, in which nineteen patients were completely cured, two complained of watering and three were not benefited.

Benedict and Barlow[19] introduce a lacrimal probe into the sac and duct as far as it will go, and allow it to remain there. This gives direction. The mucous membrane of the agger nasi is now elevated, and a resected flap, 1 cm. in diameter, removed just in front of the middle turbinate. The bone is next removed with a small chisel to make an opening slightly smaller than the opening in the mucosa. The lacrimal probe is then withdrawn slightly until its tip causes a tenting of the sac. The sac is incised with a small knife, the flap grasped and the incision continued in a circular path. The probe is then removed and the sac irrigated.

Chorowshitzky[20] devised an operation for opening the tear sac through the canaliculus, which he does not slit. A specially devised probe is entered through it and pushed through the lacrimal sac into the middle fossa of the nose. A chisel applied 5 or 6 mm. in front of the probe will expose the sac, which is then pushed out of the wound with a probe and excised.

This method embraces the principle of the procedure that we advocate. The conception of our plan arose from passing a Ziegler probe in a case of congenital dacryocystitis in a girl, aged 4 years, April, 1911, in whom we found, on examining the nose, that the probe had not gone down the duct into the valve of Hasner, but had made a false passage through the lower end of the sac into the nose. It occurred to us then that it would be good practice to break through the nose intentionally in this manner, and, utilizing the projecting end of the probe as a guide, which furnished a definite point on the inner wall of the sac, proceed to enlarge the opening upward, exposing the entire nasal wall of the sac and affording even better drainage than that obtained through the small opening made by the Ziegler probe. The results justified our expectations. A brief description of the performance of our operation with two cuts has already appeared.[21]

DESCRIPTION OF OPERATION

A Ziegler probe is introduced through the inferior canaliculus into the lacrimal sac. The probe is then directed downward until it reaches the bottom of the sac, when it is turned inward at an angle of 45 degrees and then forced through the external nasal wall into the nasal cavity. In some cases a punctum dilator must be used before the Ziegler probe can be introduced. In a few cases we were unable to introduce the probe through the lower canaliculus, but had no difficulty in going through the upper one. In none of the cases did we find it necessary to slit the punctum.

The probe enters the nasal cavity just in front of the anterior end of the middle turbinate. In some cases in which the middle turbinate is large, a portion of the anterior end must be removed immediately preceding the introduction of the probe. In cases in which the nose is narrowed by a septal deviation, a submucous resection must precede this operation, but in the majority of cases this is not necessary.

The next step is to withdraw the probe partially, having enough of the point visible in the nose to serve as a guide for the removal of as much of the bony covering of the canal and lacrimal sac as is necessary to establish a permanent opening. The opening made by the probe may be enlarged with a small punch forceps or chisel. In some of the cases we have been able to enlarge the opening by introducing a Hajek hook and turning the point upward, and with a little pressure medially fracturing the nasal wall of the sac and then removing this fractured bone with small biting forceps. In some cases a chisel curved on the flat has been used when the bone is unusually thick. The bony opening is extended upward so that the probe may be introduced into the nose almost at right angles. That is, the handle of the probe, instead of being almost vertical as when pushed into the nose, may now be introduced in a horizontal position. It will now be found that a portion of the sac may be pushed through the bony opening into the nasal cavity; with the sac held in this position, biting forceps are introduced into the nose and as much of the sac as possible is grasped between the jaws and held there until the probe is removed, and then the jaws of the forceps are closed, biting out a portion of the sac.

The bleeding is usually very slight; in no case has packing been required. The patient is not disturbed until the third day, when a No. 4 Bowman probe is introduced into the nose. This is repeated every third day or oftener, depending on the tendency of the opening to close. Granulations are kept down by means of a 40 per cent. solution of silver nitrate until the wound in the nose is entirely healed. The introduction of the probe and the applications of the silver

16. Blakesley: Demonstrated before Kansas City Eye, Ear, Nose and Throat Club, Feb. 19, 1920.
17. Graham and Patton: Opthalmoscope, November, 1914.
18. Patterson and Fraser: Brit. J. Ophth., May, 1919, pp. 197-204.
19. Benedict and Barlow: Am. J. Ophth., December, 1919, p. 843.
20. Chorowshitzky: Arch. f. Laryngol. u. Rhinol. 28: 363.
21. Loeb, H. W.: Operative Surgery of the Nose, Throat and Ear, St Louis, C. V. Mosby Company, 1917.

solution are the chief points in the success of the operation. If these cases are not carefully watched after the operation, the opening quickly closes.

Mosher [22] has remarked that "all intranasal methods must face danger of reclosure of the canal, and that every operation on the lacrimal and nasal duct is only a temporary success, unless supplemented with frequent probing or the prolonged wearing of a style." This is true in a measure, but in the cases treated by us by the method just described, the results have been most satisfactory, without the use of a style or prolonged probing. We have found it necessary to use the probe only as a means of keeping the wound open until such time as the newly made bony window is covered with a smooth, healed surface. The average time required for this to take place is approximately four weeks.

The following case reports exemplify the variations in the process of healing which may occur in different individual cases. These include cases in which healing occurred without incident, as well as complications of a more or less serious nature. The latter must be handled, according to the exigencies of the situation, with that surgical judgment acquired by all operators with a broad experience.

REPORT OF CASES

Case 1.—Mrs. C. C., aged 45, was first seen, Aug. 28, 1913, with tearing from the right eye. She was not seen again until November 10. February 17, she reported with a phlegmon of the right sac, which disappeared under hot applications. March 14, she was operated on under local anesthesia; the opening in the nose was probed every other day with a No. 4 Bowman probe until March 28; the patient was not seen again until April 9. For a time there was some tearing, but this gradually disappeared. A telephone communication, Feb. 14, 1920, informed us that she has been entirely free from symptoms since May 1, 1914.

Case 2.—Mrs. H. J. F., aged 65, with mucocele of the right side, had been treated for nearly thirty years by different oculists, during which time she was repeatedly probed. She had suffered a nervous breakdown which she attributed to daily visits at physicians' offices. She had had some nasal treatment without benefit. Under cocain anesthesia the operation was performed at the Jewish Hospital, July 3, 1916. No packing was required. A No. 4 Bowman probe was passed every third day. July 17, the fluid was easily washed into the nose. July 21, a No. 6 Bowman probe was passed without difficulty. July 24, a quantity of bloody mucus had accumulated in the sac. No fluid could be washed through the sac into the nose. July 25, a probe was introduced through the sac into the nose, and the opening into the sac was enlarged with a Graefe knife. July 26, fluid passed into the nose. The patient had no further difficulty until October 13, when she appeared at the office with some pus in the sac; but fluid could be easily syringed through the sac into the nose. The probe was again passed at intervals of a few days. November 11, there was no pus, and fluid easily passed into the nose. The patient was last seen, May 10, 1917, when her condition was quite satisfactory; there was no pus and no epiphera. A telephone communication, February 15, revealed the information that the patient has been entirely well since the last report in May, 1917.

Case 3.—B. G., aged 8, with bilateral chronic dacryocystitis and obstruction of both ducts following an automobile accident, Dec. 7, 1915, was first seen, March 6, 1916. There was a marked epiphora with mucopurulent discharge from both sacs. There was marked disfigurement as the result of fracture of the nasal processes of both superior maxillae and the nasal bones. There were large adenoids and hypertrophied tonsils. April 21, under general anesthesia, a Ziegler probe was passed; there was great difficulty in finding the openings into the nasal ducts because of the previous fracture, but finally we were able to introduce both sizes of the probes. Owing to the marked deviation of the septum and narrow nasal passages, nothing further was done. Very little bleeding followed the probing. April 25, the patient was discharged from the hospital with sacs in much better shape. May 13, 1916, adenoids and tonsils were removed. September 5, there was still some secretion, but very little pus. The patient was not seen again until Feb. 19, 1917. There was still a little secretion; we were unable to wash any fluid into the nose. March 12, 1918, he reported again; there was still considerable tearing, but there was no pus. Aug. 4, 1919, considerable pus was discharging, but we were unable to express any from the sac. The operation as described was performed on the right side at the Jewish Hospital, September 13. September 22, the operation was performed on the left side. September 29, fluid passed easily into nose; no probing was necessary. October 4, fluid washed readily into the nose. October 26, there was decided improvement in the tearing. December 6, fluid was easily syringed through both sides. December 27, there was no secretion and practically no tearing.

Case 4.—Mrs. J. B., aged 25, first seen by Dr. H. L. Wolfner, Dec. 3, 1912, with a large abscess of the sac, which he opened, had several attacks after this and appeared at Barnes Hospital Clinic in April, 1918, with a mucocele. Our method was attempted by one of the junior surgeons, but was poorly executed. A terrific infection followed, lasting several weeks. The patient was reoperated on by us, May 20, 1918; she reported for treatment six times. When last seen, June 11, 1918, there was no secretion and no tearing. This patient reported over the phone, Feb. 14, 1920, that she has not been conscious of any eye symptoms whatsoever, since the operation.

Case 5.—Mrs. G. M., aged 62, with dacryocystitis, first seen, March 13, 1918, had had tearing from the left eye for the last year. She had had some pain about the eye, radiating to the temple and left ear. Some mucopurulent discharge could be expressed from the left lacrimal sac. The following day she was operated on under local anesthesia; a No. 4 Bowman probe was passed every other day for two weeks, at the end of which time there was neither secretion nor tearing, and cut surfaces in the nose were apparently healed.

Case 6.—Mrs. I. B., aged 50, consulted Dr. Wolfner, May 9, 1917, for dacryocystitis and ulcer of the left cornea. She was operated on by us at the Jewish Hospital, June 1. July 14, the ulcer had healed and the sac was draining nicely into the nose. August 20, fluid washed into the nose, but pus collected in the sac. August 29, fluid washed into the nose, but the sac did not drain. Another attempt was made to enlarge the opening in the sac from the nose. September 8, the condition was slightly better, 1 per cent. ethylhydrocuprein (opotochin) was used. November 11, it was much better. Dec. 8, it was still discharging. December 15, it was still discharging; the sac was washed out. Fluid passed readily into the nose. From Dec. 15, 1917, to June 13, 1918, the patient reported from time to time, but refused any further operative measures. June 13, she consented to operation. The probe was easily passed, but pus continued to accumulate. Two further attempts were made, Feb. 6, 1919, and May 20, 1919. Great difficulty was encountered in passing the Ziegler probe through the sac. There is some obstruction in the sac itself; fluid washes through readily and the probe goes into the nose through a wide bony opening, but it is held tight in the sac. Pus continues to collect.

SUMMARY

Cases 1 and 5 exemplify the uninterrupted process of healing without complications and with perfect end-results. Attention is especially called to the few times it was necessary to pass the probe.

Case 2, which ultimately ended in an entirely satisfactory manner, emphasizes the importance of painstaking after-care. This case was rescued from what

22. Mosher, H. P.: Discussion on Chamberlin, W. B.: The Endonasal Operation on the Lacrimal Sac, J. A. M. A. 69: 19 (July 7) 1917.

might have been an unhappy result, to a most successful outcome.

In Case 3 a satisfactory result was obtained in spite of the deformity due to the fracture and the narrow nasal passages.

Case 4 illustrates how an operative plan can be condemned or brought into disrepute on account of faulty technic. In this case a perfect result in the minimum space of time was accomplished by the second operation.

Case 6 proves the futility of almost any standard of intranasal operation for the relief of a certain type of dacryocystitis. A complete obliteration of the sac had evidently occurred, and in its place the space filled up with dense scar tissue.

The simplicity of the operation and the large percentage of cures justify our faith in the superiority of this method of procedure.

ABSTRACT OF DISCUSSION

DR. WILLIAM H. WILDER, Chicago: Operations of the kind described show the desirability of securing a more or less natural drainage of the tear secretion into the nose and the drainage of the tear sac. The fact that many different methods have been proposed suggests that the subject is not so simple as would appear at first thought, and that the results are by no means uniformly successful. Naturally, much will depend on the technic employed. It would seem that the use of a guide forced through the sac and the bony wall of the nose would insure a more accurate opening. It would seem to be essential that the opening into the nose should be at the most dependent portion of the sac or of that part of the nasal duct that still remains patent, and that it should be abundantly large. If any portion of the sac or the duct is not drained through such an opening it would form a pocket for the retention of infectious material. I understand that the authors claim that this essential feature is met by their method of operation. To insure permanency of the opening its edges must be covered with periosteum and mucous membrane. If the sac wall is much thickened and diseased, there would be likelihood of granulation tissue blocking the opening and defeating the result. Might it not be well to first examine the sac wall through an incision from the outside and determine at what point to make the opening into the nose to insure its being at the most dependent part or whether it might be best to extirpate the sac rather than attempt to drain it? In the interest of safety to the eye through the eradication of a dangerous focus of infection, complete extirpation of the lacrimal sac will be the operation of choice and the wisest procedure in many of the cases of dacryocystitis in which the duct is no longer patent.

DR. WALTER B. LANCASTER, Boston: I have seen two or three cases in consultation in which orbital cellulitis of more or less severity followed. It seems to me that if one wishes to make an opening in this manner, it is much better to make an incision through the skin lying over the sac, and then make an opening into the nose, so that one can see what he is doing. The edges can be lined with a mucous membrane flap, and in that way a large opening is secured; one that will stay open. I cannot say that the operation appeals to me. In many cases epiphora cannot be cured by making an opening into the nose. These cases are common among patients over 50. The trouble is not in the drainage apparatus, but in the secretory apparatus. Hence an operation to reduce secretion is indicated and in the absence of dacryocystitis or other source of removable irritation to cause hypersecretion, extirpation of some of the lacrimal gland is most likely to be successful.

DR. WILLIAM L. BENEDICT, Rochester, Minn.: The endonasal operation for the relief of dacryocystitis offers several distinct advantages over other methods of treatment. The restoration of function to the lacrimal passages affords much comfort to the one who has had a troublesome epiphora. I am strongly in favor of dacryocystostomy where such operation is indicated. The surest and best treatment of this condition lies in a procedure that at once is not difficult of performance, requires little or no after-treatment, and gives immediate relief of annoying symptoms. Among our patients who were operated on successfully no recurrence of symptoms has been noted. We have been extremely slow to recognize the very frequent association of dacryocystitis with hyperplastic or suppurative ethmoiditis. I have reoperated for dacryocystitis or lacrimal fistula on patients operated on elsewhere to find that the sac had been cleanly removed, but the symptoms of the disease persisted through discharge from diseased ethmoid cells. Schaffer calls attention to the pneumatization of the bone surrounding the lacrimal duct, and the ease with which a chronic ethmoiditis can produce a chronic dacryocystitis, and vice versa. From whatever route the disease is attacked the ethmoid cells should be observed. This can be done better by the endonasal route. After-treatment, if necessary, can be carried out better, and at the same time a chance for restoration of function is afforded which cannot be said of the extirpation operation.

DR. WILLIAM C. POSEY, Philadelphia: In the discussion of a paper read by Dr. Mosher of Boston last fall in Philadelphia, describing his operation for lacrimal obstruction, it was shown that notwithstanding the successful completion of his operation, in many cases probing was necessary some months later to keep the passages open. If this is true of all endonasal operations, are we any better off than if we continued to probe the lacrimal nasal duct itself? Of course, it is desirable, if possible, to restore the normal drainage from the eye to the nose, but with extensive disease of the mucous membrane lining the passages, removal of the sac is the best procedure of all.

DR. LOUIS D. GREEN, San Francisco: In 1913 I became very enthusiastic over the endonasal operation after seeing Halle and West do quite a number of these operations. On my return to San Francisco I gathered all the cases I could and performed this operation. After a period of about six months my enthusiasm began to disappear with the disappearance of the openings, so that ultimately I discontinued the operation. In the majority of these cases the opening closed, no matter what I did. The operation described by the essayists is much simpler than the other types of endonasal operations, and that is one thing in its favor. Dr. Wiener emphasizes the necessity of using a strong silver nitrate solution. We did not use a 40 per cent. solution, but almost everything else was done to keep this opening patent, and yet a majority of them closed. Often, with the immediate relief obtained, the patient feels so much better that he thinks he is well, but unless I am able to see a colored solution dropped into the eye appear in the nasal cavity in a few moments I do not feel that I have accomplished much.

DR. EARL WHEDON, Sheridan, Wyo.: Among the Crow and Cheyenne Indians there is much trachoma and dacryocystitis, in some cases with definite ulceration. I have been using different intranasal operations and I have had the same trouble—the opening will close up. I follow the Gifford method, and I feel that I have saved many eyes.

DR. MEYER WIENER, St. Louis: In our operation, the essential feature is the guiding of the probe in the location of the sac; and we have not found a mucous flap necessary. Introduce the probe and push it down until the bottom of the sac is reached, from which point it is crushed through into the nose at an angle of 45 degrees. We open up the sac from this point upward. I have not seen any case of orbital cellulitis following this operation. If you use the Ziegler probe, which is pointed, you will not get any fracture because the bony wall at this point is quite thin and the mucous membrane through which you force the probe affords a protection that prevents fracture. Probes should be passed before the application of silver is made, to get rid of secretions; then the surface is thoroughly cleansed before the silver is applied. Before discharging any of these patients we follow them up from time to time, washing from the duct into the nose and seeing that the fluid readily passes through.

OBSERVATIONS ON DÉBRIDEMENT OF WOUNDS

FREDERICK C. WARNSHUIS, M.D.
AND
URSUS V. PORTMANN, M.D.
GRAND RAPIDS, MICH.

It is not our purpose to discuss the indications for the débridement of a wound incurred as the result of an outward force. Much has been said and written on the subject; its technic has been described. The method of treating war injuries by débridement, drainage, solution irrigation, or posture, likewise has occasioned the publication of numerous articles. The surgeon of today is familiar with these details and has become more or less experienced with this method of surgical treatment of traumatic wounds. Some there are whose experience has been limited and who have not encountered the end-results or the incapacity that has resulted from a too universal application of this method of treatment. The impression seems to be somewhat fixed that no baneful or untoward results ensue: that contraindications do not exist. It is therefore desired to present certain observations that have been made.

These observations are based on the many debrided wounds that came under our care while in France (between three and four thousand), some 1,500 examinations made of ex-service men applying for compensation and vocational training, and the employment of débridement in the treatment of industrial injuries —a total of more than 5,000 cases.

It is recognized that the adoption of the débridement of war injuries was without doubt a valuable standardized method that prevented a high mortality in battle casualties. It is also recognized that not every wounded soldier was the recipient of a skilful débridement. The fatigue of the operator from long hours of operating, the need for speed on account of hundreds of waiting wounded, the forgotten anatomic relationship of structures, all account for some of the untoward results. We take into consideration these factors, not for critical reasons, but to emphasize the more clearly that the débridement of an inflicted wound is not a simple procedure that can be lightly undertaken by every possessor of scalpel and scissors. On the contrary, the operator must be endowed with training, experience, and familiarity with the principles of modern surgery, surgical technic, bacteriology, principles of draining, and anatomic relationship; and also, he must be one whose surgical work consists of more than an occasional operation. Such qualifications will achieve the greatest good when débridement is employed—their lack will result in a higher percentage of untoward results.

HERNIA OF MUSCLES

Our observations and subsequent experience have taught us that destruction, unnecessarily, of course, of fascia tissues, superficial and deep, must not be heedlessly and recklessly accomplished. To do so invites muscle hernia and impaired muscle function as well as loss of a large part of the use of an arm or leg, and intense, constant pain in the herniated muscle.

Some of these wounds in ex-service men, now well over eighteen to twenty-four months since débridement, present muscle hernias of varying size and produce more or less incapacity. We have examined many of them and have gone into a detailed examination of the cause and nature of the prima injury, the time element between the sustaining of the wound and the time when operated on, the length of time the wound was kept open, the irrigation solutions employed, and the method by which complete healing was accomplished. From such a study we conclude that:

1. All too frequently fascial tissues were needlessly sacrificed.
2. Drainage and surgical solution of chlorinated soda (Dakin's solution) was employed over a too extended period.
3. Secondary closure was not utilized.
4. Fat transplants were not employed.

Therefore, to lessen muscle hernia and its debility the operator should be familiar with the factors that produce and the factors which lessen muscle hernia probabilities.

LARGE, INDURATED, PAINFUL SCARS

It naturally follows that in extensive wounds large scars are bound to ensue. Their indurations, extent and painfulness may be minimized. Many of the debrided wounds that we have seen may be termed almost failures and crimes for the following reasons:

1. The extended débridement was permitted to heal by granulation, and this healing retarded by persistent irrigations and packing over an unnecessarily long period of time.
2. The principles of drainage were faultily instituted and persisted in.
3. Bacteriologic cultures were not employed.
4. Secondary closure was not performed.
5. There was failure to cover exposed nerve trunks with fat implants.

Extensive scars, painful scars, cicatricial deforming contractions, and thickened, leather-like scars may be almost always prevented by the observing of these guiding principles.

While in France, from December, 1918, to May, 1919, we observed these principles in several hundred cases with most satisfactory results. The ultimate scar, the anatomic results and the appearance of the final scar created a justifiable enthusiasm in behalf of these principles. With careful, painstaking technic it is possible to secure thin, straight line healing of skin and fascia very similar to those the surgeon now encounters in his open treatment of fractures, laparotomies, etc., that heal by primary union. We have become accustomed to refer to this method as "secondary plastic closures." We inserted the word "plastic" because the operation frequently calls for plastic formation of fascia and skin covering. Its success depends on the surgical sterilization of the wound, bacteriologic count, excision of exuberant and partly organized granulations, infiltrated areas, the placement of fat transplants and skin closure by means of flaps sutured without tension, a detailed attention to the institution of a careful sterile technic, and lastly to proper dressing, bandaging and immobilization of the part. We feel that disfiguring, deforming and painful scars may be avoided if, after débridement, secondary plastic closure is utilized. In fact, one has not completed his surgical work if the patient is permitted to be discharged without the employment of a plastic closure.

EXPOSED AND HYPERSENSITIVE NERVE TRUNKS IN DEBRIDED WOUND SCARS

A complete débridement often exposes or involves in the healing process sensory nerve trunks or branches. In some this does not become pronounced until healing has been complete and ultimate scar contraction ensues. The condition is most painful, incapacitating, and a cause for constant complaint as well as eagerness to obtain relief. In its effect on the individual, the condition is virtually equivalent to tic douloureux. Especially is this true if the wound exists on the buttock, back or posterior surfaces of the thighs and arms, because of their being subject to more frequent pressure. There is but one method for accomplishing relief, namely, resection of the scar, exposure of the nerve, placement of a fat transplant, and closure by plastic flap.

We have lately been called on in a number of such cases to accomplish the relief of this condition, and are satisfied that this is the most efficient method. It is also a precaution to be observed in the performance of a débridement and the subsequent care of the wound to prevent such a result.

SINUSES FOLLOWING DÉBRIDEMENT

Our observations are that persistent discharging sinuses result from: (1) foreign bodies remaining in the wound; (2) bone involvement and necrosis, or (3) organized fibrinous granulations, so-called, lining a track that has been kept open unduly long by drainage tube or gauze. In some the skin heals over, only to break down again repeatedly, by reason of retentive accumulations of serums or purulent material.

When confronted with such a sinus, the true condition should be ascertained by roentgen-ray examination. The course and extent of the sinus track and its ramifications may be most satisfactorily outlined by injection with a 20 per cent. aqueous solution of sodium iodid, and stereoscopic plates.

Treatment consists of removal of all foreign bodies, removal of diseased bone, bacteriologic cleansing of the wound, and final closing of the wound in conformity to the method previously described.

SCARS ADHERENT TO BONY STRUCTURES

When the débridement has necessiated the removal of soft part to such a degree that a bone is exposed, a resulting scar adherent to the bone creates a most troublesome condition. When this condition exists, an attempt should be made to correct by massage, vibration and definite exercises. When the release of the adhesion cannot be thus secured, it becomes necessary to resort to the interposition of a fat transplant. The condition can be avoided by early secondary closure.

CAUSE OF UNTOWARD RESULTS

These aforementioned results following débridement of wounds may be looked for in a large percentage of injuries in which débridement has been incompletely performed, the subsequent care characterized by failure to employ bacteriologic control of the wound, prolonged, persistent irrigation and drainage, permitting wounds to heal by granulation, failure to employ secondary plastic closure, and, lastly, failure to institute massage and rehabilitating functional exercises.

The observations recorded are not carping criticisms; they are, on the contrary, a somewhat terse summarization of our conclusions arrived at after an impartial study of involved factors in cases in which the ultimate result might well have been otherwise. Our reconstructive measures have resulted in causing satisfactory end-results, thus substantiating the allegation that this was possible in the first instance. We believe that avoidance of these errors will achieve the greatest desirable end-results when performing a débridement.

In dealing with industrial wounds of certain types, the surgeon must likewise be familiar with certain definite causes of failure and prevent their incidence. In these cases, débridement has been wrongfully condemned because of neglect or lack of familiarity with the principles involved. The subject is one that we propose to discuss in a future article based on 1,000 industrial injuries. To do so in this article would involve the writing of a far too extended single paper.

A SECOND ATTACK OF MENINGITIS AFTER AN INTERVAL OF EIGHTEEN MONTHS

WILLIAM ALLAN, M.D.
CHARLOTTE, N. C.

The proportion of the general population attacked by sporadic meningitis is small, so that a second attack of meningitis is necessarily very uncommon. In epidemics, however, a small proportion of patients have second attacks, and the study of these recurrences may throw some light on the degree and duration of the immunity conferred by an attack of meningitis—a very obscure subject at the present time.

Netter[1] has reviewed the early cases reported and described five cases of his own. He cites Boudinn's cases, one a man, aged 69, who had attacks from January 9 to February 24, from May 3 to May 18, from May 27 to June 9, and from June 17 until death, June 20. The man seemed perfectly well between attacks, and returned to work. A second patient suffered with meningitis in February, 1841, and again in February, 1842; Boudinn treated a third patient in 1851 who had two attacks in 1849 and one in 1850. Netter also cites North's case of meningitis recurring after an interval of twenty-five months, Hermann and Kober's case recurring after months, and Washaur's case recurring after five years.

In 1898, Councilman, Mallory and Wright[2] were able to collect five instances from the literature. In reviewing even the modern literature of this subject we are at once confronted with the difficulty of distinguishing between recrudescences, relapses and recurrences. Clinically, the chronic cases run in an intermittent, fitful course, and it is impossible to say when recovery is complete. The spinal fluid, which is our best guide in treatment as well as in prognosis, is not an unfailing criterion of the progress of the infection, as the spinal fluid may be clear and without meningococci, while these organisms may be active or dormant within the sealed off ventricles or cisterna magna or within the thick, purulent, fibrinous exudate over the meninges. The time necessary for the absorption of this exudate is necessarily variable and uncertain.

Arbitrarily, we have considered any new clinical manifestation of infection within thirty days as a recrudescence in the course of a chronic case. The

1. Netter, A., and Debré, R.: La méningite cerebrospinale, Paris, Masson et Cie, 1911, p. 131.
2. Councilman, Mallory and Wright: Special Report to Massachusetts State Board Health, 1898, p. 77.

course of such cases is well shown by Gordon,[3] who reports ten fatal chronic cases with eight necropsies. His patients would almost recover clinically, only to relapse within nine to twenty-one days with acute symptoms. The duration of the disease varied from two and one-half to thirteen months, with progressive increase in motor, sensory and psychic disturbances. In all, the ventricles were dilated and sealed off, containing purulent or cloudy fluid. The spinal fluid on puncture was generally clear. At necropsy a diffuse pachymeningitis of brain and cord was present.

During the second and third months after apparent recovery, reinfection is probably much more common from within than from without; after a three months' symptom-free interval we are ready to consider the probability of reinfection from without—that is, a recurrence or second attack of meningitis.

Netter[4] says that remissions may last from a week to three or four months and reports[4] four cases with symptom-free intervals of from thirty to seventy-three days. His first and third cases seem ordinary relapses after thirty and thirty-one day intervals, respectively. His second case recurred after seventy-three days, having passed through both measles and diphtheria in the meantime. His last case occurred in a girl of 5 who recovered promptly under treatment. She had a second attack after two months, during which time other members of the household had meningitis. These four cases constituted 1.14 per cent. of his 350 cases, or 1.56 per cent. of his 255 nonfatal cases.

Stone and Truitt,[5] in their experience at Fort Riley, found that 5 per cent. of their patients gave a history of a preceding carrier state, and two of their 191 cases gave a definite history of a previous attack of meningitis. One of these died. Two of their series were readmitted in second attacks. "The first patient was in the hospital thirty-two days with a typical moderately severe attack. Sixty-five days after his discharge from the hospital he was readmitted unconscious in a second attack from which he recovered in thirty-three days." The second patient had a moderately severe attack and was discharged on the forty-second day; eighty-four days later he was readmitted with typical meningitis. He had ventricular or spinal blockage and was sensitive to serum. He was given sensitized vaccine and recovered after four months. These four cases constitute 2.09 per cent. of this series.

Herrick,[6] in 1918, reported two replases after three and four weeks, respectively, finding that the relapse may be more severe than the first attack. He stated at that time that "the fact of their occurrence lends discouragement to vaccine prophylaxis and other measures for the production of immunity."

The next year Herrick and Dannenberg[7] reported seven cases of recurrent meningitis, six of which constitute 2.2 per cent. of Herrick's 265 cases at Camp Jackson. As the case reported here occurred in Herrick's series, the percentage is raised to 2.64. He suggests in the article that the passive immunity conferred by the serum treatment is transient, and as the body has little opportunity to establish active immunity, the use of vaccine following meningitis would probably prevent these recurrences. Four of Herrick's and Dannenberg's cases recurred during the second month after recovery; one recurred after an interval of fifty-seven days during which all deep reflexes were exaggerated, and the right abdominal reflex was greater than the left; another case started convalescence with a residual strabismus and relapsed after seventy-three days. One case recurred after a symptom-free interval of 135 days. As the authors suggest, these (the first six at least) were more likely to be reinfections from within than from without.

Sophian[8] quotes Ker as saying that relapses occur in from 15 to 20 per cent. of cases; but in his own opinion, true relapses occur in less than 5 per cent. of cases. He says that most of these relapsing cases have during apparent convalescence symptoms of hydrocephalus of varying degree, followed by recrudescence instead of relapse.

REPORT OF CASE

Corporal R. S. B., 316 F. A., 81st Division, seen with Drs. Gilbert McLeod and W. C. Mudgett at the James McConnell Hospital, Sept. 21, 1919, had meningitis in December, 1917, at Camp Jackson. He remembered having had four lumbar punctures and being returned to duty after a month. He did no heavy work for several months, and went overseas in May, 1918, where he performed his usual duties throughout the campaign except for a few days in November, 1918, when he was in a field hospital with bronchitis. He was discharged in August, 1919, in Class A. He had been sick six weeks with headache and irregular fever, having fever from one to three days, with a free interval of several days. During the preceding week he developed projectile vomiting and stiff neck, and lumbar puncture two days before gave a very cloudy fluid. When seen, he had stiff, slightly retracted neck; pupils equal, reacting poorly because of opiates; ocular movements normal; no palsies. The tongue was coated, the throat normal. There were no enlarged glands, and no evidence of previous intravenous medication. The heart, lungs, abdomen, genitals and extremities were normal. There was no skin eruption. Both the superficial and the deep reflexes were exaggerated. There was no clonus and no Babinski reflex; Kernig's sign was present, well marked, bilateral and equal. Hearing and vision were good. Cerebration was normal. The patient had lost flesh, but was in good condition in view of the pain, fever and partial starvation for several weeks. When seen, his temperature was 98.8, the white blood count, 11,000. The pulse had not risen with the fever. Lumbar puncture produced 50 c.c. of opalescent fluid under moderate pressure. This fluid showed many leukocytes, all polymorphonuclear, and was crowded with gram-negative diplococci, mostly extracellular. Under repeated injections of serum, the patient recovered completely.

Herrick[6] reports his first attack as mild, with early diagnosis, and only intraspinal therapy.

Baeslack and his associates[9] report one negative culture from spinal fluid, but positive culture from the blood. Unfortunately in neither attack was the organism typed.

Dr. McLeod later obtained from the patient the information that in March, 1919, there had been twenty-four cases of meningitis in this man's outfit and forty-two carriers who were transferred to a Casual Company. He himself was negative to several cultures. The last week in May the forty-two who had been carriers were returned to the organization and came home in the same transport, going to the same camp for discharge. This was undoubtedly a case of

3. Gordon, Alfred: The Chronic Form of Meningococcus Meningitis, Arch. Int. Med. 23:150 (Feb.) 1919.
4. Netter, A.: Arch. de méd. d. enf. 22:72 (Feb.) 1919.
5. Stone, W. J., and Truitt, R. C. P.: A Clinical Study of Meningitis Based on Two Hundred and Fifteen Cases, Arch. Int. Med. 23:282 (March) 1919.
6. Herrick, W. W.: The Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, Arch. Int. Med. 21:451 (April) 1918.
7. Herrick and Dannenburg: Med. Clinics N. A., September, 1919, pp 379-387.
8. Sophian, A.: Epidemic Cerebrospinal Meningitis, 1913, p. 101.
9. Baeslack, F. W.; Bunce, A. H.; Brunelle, G. C.; Fleming, J. S.; Klugh, G. F.; McLean, E. H., and Salomon, A. V.: Cultivation of Meningococcus Intracellularis (Weichselbaum) from the Blood, J. A. M. A. 70:684 (March 9) 1918.

reinfection from without, due probably, as Dr. McLeod suggests, to the failure of his temporary immunity after eighteen months.

Sophian and Black[10] report that vaccination with the meningococcus produces a considerable degree of immunity which persists for at least two years.

In view of this finding it seems wise to adopt Herrick's suggestion that besides the passive immunity conferred by serum, we also stimulate active immunity by the use of meningococcic vaccine.

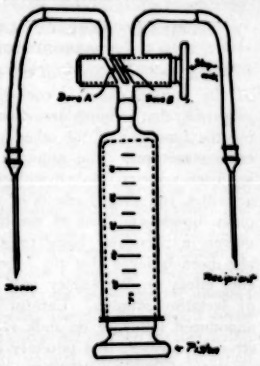
Clinical Notes, Suggestions, and New Instruments

DIRECT BLOOD TRANSFUSION APPARATUS

BARNETT GREENHOUSE, NEW HAVEN, CONN.

Recently I suggested[1] the use of a two-way glass stopcock as a probable solution of the direct transfusion problem. This made the apparatus a bit clumsy. To obviate this and to increase the ease with which the instrument can be used, a single three-way stopcock can be substituted for the two two-way stopcocks, according to the accompanying illustration.

The apparatus as sketched is ready to receive the donor's blood, since Bore *A* is in direct communication with the donor's needle and the syringe, while Bore *B* is closed. After the syringe is filled by drawing out the piston the stopcock is turned half way around. This at once shuts off Bore *A* and places Bore *B* in direct communication with the syringe and the recipient's needle. The blood is then forced into the recipient's vein by pushing in the piston. The process is repeated until sufficient blood is transfused.



Direct blood transfusion apparatus, with three-way stopcock.

28 Hallock Street.

A NEEDLE FOR INJECTING THE VAS DEFERENS

THOMAS M. PAUL, M.D., ST. JOSEPH, MO.

A needle with the smallest lumen that will admit a strand of silkworm gut is selected. Its point should be cut off square with the shaft and the edges rounded in toward the opening. A drop of solder should be fused around the shaft about three-quarters inch from the point. The solder should then be smoothed off to an angle of about 45 degrees with the shaft. The conical slant thus formed should, of course, be on the side looking toward the needle point. These mechanical details can be easily executed by any dentist. A carborundum wheel is used to round off the needle's point, and a sandpaper disk to give the conical shape to the solder.

After the vas is opened, and a strand of silkworm gut inserted into its lumen, the needle is threaded on the silkworm gut and pushed into the vas until the shoulder of solder plugs the opening. The silkworm gut is withdrawn, the loaded syringe attached to the needle, and the injection made. After the injection, the silkworm gut is again passed up the vas, through the needle, for about 5 or 6 inches, and its free end tied in a common knot with the two ends of another strand of silkworm gut which has been passed beneath the vas. At the next injection the vas is pulled out of the

Needle for injecting the vas deferens.

scrotal wound by drawing on all three strands, the knot is untied, the strand passing beneath the vas removed, the needle threaded on the strand remaining in the vas, and the injection made as before. I prefer this to using only one strand of gut passed in through the lumen of the vas and out through its side.

The shoulder of solder effectively prevents the regurgitation of the injected fluid into the epididymis and the consequent production of a chemical epididymitis, which is very distressing. Its adoption was suggested to me by Dr. J. E. Weedin, a dentist with offices in the same building as my own, when I invaded his laboratory and attempted to blunt a needle with one of his files. He informed me that such solder beads are constantly used by him to gage the depth to which a needle is inserted in nerve blocking. It is hardly necessary to add that it was he who demonstrated to me the advantage of a carborundum wheel and dental engine, in the hands of a dentist, over a common file in the hands of a physician.

A similar needle is suitable for irrigating the kidney pelvis and ureter, through the ureteral catheter; its outside caliber should be scarcely small enough to admit its entering the catheter, and the slant, formed by the shoulder of solder, should be very gradual, so that the beginning of the shoulder will enter the lumen of the unyielding catheter, and thus effectively prevent the regurgitation of fluid during the injection.

Physicians and Surgeons Building.

A CASE OF DOUBLE VAGINA AND DOUBLE CERVIX

LEON WILLET HYDE, M.D., HILLSBORO, ORE.

During the year 1915, a young woman consulted me with regard to her condition in view of prospective matrimony. She said that she had never suffered any at the menstrual period, but that at times the flow was scanty. Sometimes the menstrual flow would stop and be followed a few days later by a similar flow. On examination, the vagina was found so small that it was impossible to make a digital exploration. At the fourchette a distinct septum could be felt. This was firm and manifestly formed the central separation of two vaginae. I informed the patient of the condition, and recommended operation. This was delayed for about two months, at which time I removed a complete vaginal septum which, except for size, was characteristic of the vaginal wall in appearance. Using a good sized speculum, I examined the os. Instead of a single os there were two distinct and well formed ora. Except for being small, both vagina and ora were perfect. After painting the cartilaginous bases, left as a result of the removal of the septum, with iodin, I packed the vagina with gauze and put the patient back to bed. Recovery was uneventful.

In about six months this woman was married and moved to Portland. I requested that, should she become pregnant, she ask her physician to let me know. This she did. The physician, getting the report of the case from me, was interested in the outcome of her pregnancy. In due time he reported the birth of a healthy and normal child. In view of the report of Dr. H. G. Steele[1] of Bluefield, W. Va. I felt that this report would be of interest.

10. Sophian, Abraham, and Black, J. H.: Prophylactic Vaccination Against Epidemic Meningitis, J. A. M. A. 59: 527 (Aug. 17) 1912; 59: 2126 (Dec. 12) 1914.

1. Greenhouse, Barnett: "Blood Transfusion Apparatus," J. A. M. A. 74: 967 (April 3) 1920.

1. Steele, H. G.: A Case of Vaginal Septum and Bicornate Uterus, J. A. M. A. 75: 309 (July 31) 1920.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 25, 1920

THE VIABILITY OF RED BLOOD CELLS

Presumably, foremost among the various reasons for transfusing blood in suitable cases is that of restoring the number of functionally competent red blood cells when a dearth of them is indicated by some sort of anemia. Strangely enough, comparatively little is as yet known with precision regarding the fate of transported erythrocytes. If they are expected to continue as physiologically effective carriers of oxygen and to perform in the same normal way as in their donor, they must obviously continue to function thus when they have entered the circulation of the recipient; otherwise, blood introduced into the veins would be little more than a relatively inert chemical mixture. Furthermore, in these days of frequent transfusion at short notice in imperative cases, it is an enormous advantage to be able to retain blood in vitro for such emergencies without appreciable loss of its restorative value.

Not long ago, Rous [1] and his associates at the Rockefeller Institute for Medical Research demonstrated that red blood cells can be preserved fourteen days or more in suitable solutions without apparent decrease in "viability." At any rate, when injected into the circulation they seemed to function so well that the experimental animals showed no detectable disturbances or variations from the normal blood picture. Cells preserved for twenty-three days, however, though they were apparently intact and morphologically unchanged when transfused, soon left the circulation.

On the basis of animal experiments, Kambe and Komiya [2] of the University at Tokyo have also concluded that preserved blood or even erythrocytes alone may retain their physiologic potencies so that they show a normal length of life after transfusion. It is known from microscopic examination of the blood that during rapid regeneration of the red cells following hemorrhage they show the presence of nucleated forms. The Japanese investigators accordingly produced experimental anemias by hemorrhage and then injected blood cells preserved in various ways. The absence of characteristic morphologic regenerative forms among the blood cells during the days following the transfusion indicated that the newly supplied erythrocytes were evidently capable of performing the usual functions of blood cells so that the hematopoietic organs were not stimulated to produce new ones. In this way it was demonstrated, for rabbits, that erythrocytes preserved as defibrinated blood can maintain their normal vitality for twenty days, and in mixtures of isotonic sodium citrate solution and glucose solution, even for thirty days or more. Hence they may be used to replace lost blood. It is to be hoped that these findings will ultimately be investigated with sufficient thoroughness to render them applicable to man when appropriate occasions arise in which the usual more direct technic is not readily attainable.

1. Rous, Peyton, and Turner, J. R.: J. Exper. Med. 23:219, 239 (Feb.) 1916.
2. Kambe, H., and Komiya, E.: The Transfusion Experiment with Red Corpuscles, Am. J. Physiol. 53:1 (Aug.) 1920.

PITUITARY EXTRACT AND INTESTINAL ABSORPTION

When the long history of the scientific investigation of the thyroid gland is considered, it becomes less surprising that so much uncertainty still exists respecting the functions of the other less well known endocrine structures. The pituitary gland, for instance, has been associated by physiologists with a variety of activities, the alleged effects of the posterior lobe on plain muscle and that of the blood vessels and the uterus in particular being most prominent. It has also been believed that the hypophysis exerts a specific effect on the kidney and the mammary gland of lactating animals. Careful observations of this announced influence on milk secretion have demonstrated, however, that pituitary extracts are not true galactagogues; they stimulate, not the actual production or secretion of milk, but rather the expulsion of the milk that has already collected in the alveoli and ducts of the mammary glands.

In the case of the renal function, on the other hand, the state of present-day knowledge is most confusing to the ordinary student. He is told, on the one hand, that administration of extracts of the posterior lobe of the pituitary gives rise to increases in the flow of urine, and that this diuresis may sometimes be followed by glycosuria. One might suspect that the gland extracts produce such a reaction by causing a vasodilatation. The known facts with respect to the renal circulation speak against this assumption, as does the knowledge that elsewhere in the body pituitary extracts tend to produce vasoconstriction, if anything.[1] On the other hand, it is taught that pituitary medication is of distinct value in cases of chronic polyuria (diabetes insipidus),[2] although its repeated

1. Macleod, J. J. R.: Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1918, p. 769.
2. New and Nonofficial Remedies, Chicago, American Medical Association, 1920, p. 206.

administration over long periods of time is not advisable and it is less effective when given by mouth.

Some of the confusion caused by such seemingly contradictory statements might be removed if some explanation were available for the at least temporary antidiuretic effects that have lately been recognized in both experimental and clinical observations after subcutaneous administration of pituitary extracts. Instead of looking solely at the kidney factor, Rees [3] of the University of South Dakota has considered the possible variations in the transport of water in the body during the action of the pituitary products. He has thus observed that subcutaneous injection of the latter in animals actually results in a delay in the absorption of water from the bowel. This delay may not be sufficient in all cases to account for the retardation of secretion of water by the kidneys; nevertheless, it illustrates the danger of drawing conclusions as to the pharmacodynamics of potent products until all the physiologic factors have been carefully considered. It is one effect to reduce the excretory functions by direct action on the renal structures, but quite a different one to delay excretion by preventing water from reaching the kidney.

THE SPECIFICITY OF HEMOLYTIC STREPTOCOCCI

During the last few years there has been a rapid advance in the understanding of the bacteriology and immunology of pneumonia, and it has become fairly well established that there are not only a number of distinct types of pneumococci, but that there perhaps is some therapeutic value in the use of specific immune serum. It is now generally accepted that Type I pneumococcus is a unique variety, has marked pathogenicity, and is rarely found in normal throats; the so-called Type IV is heterogeneous and is found widespread under normal conditions. Hemolytic streptococci are found under much the same conditions as pneumococci, and it is possible that certain biologic differences exist among hemolytic streptococci corresponding to those between pneumococci. Heretofore, the classification of streptococci has been based on the morphologic and cultural characteristics without respect to distribution and pathogenicity; but in order to establish any specificity it may be necessary to include their immunologic properties as well. Previous to 1903, streptococci were classified roughly according to morphology and staining reactions; but with the introduction of the blood agar plate by Schottmüller, two large groups were established, the hemolytic and nonhemolytic. Then came a period when streptococci were subdivided on the basis of acid production in certain test sugars, and numerous classifications were suggested, the most successful being based on the amount of hemolysis produced on blood agar and further subdivision by the use of fermentation reactions. No one classification, however, has thus far proved entirely adequate, and we now seem to have reached the point at which the immunologic properties of hemolytic streptococci are to receive special attention.

Repeated attempts have been made to determine the specificity of streptococci by immunologic reactions, but with confusing results, owing, perhaps, to the fact that much of the work was done before the introduction of the more accurate methods of separation of pneumococci from green-producing and hemolytic streptococci. At all events, recent studies along these lines have yielded more consistent results; indeed, they open the way to the establishment of biologic groups among hemolytic streptococci. Dochez, Avery and Lancefield [1] studied the agglutination of 125 strains of hemolytic streptococci from a wide variety of sources, and found that human hemolytic streptococci do not conform to a single type but probably consist of a number of types; at least six of these were demonstrated. Not only were these facts established by the study of specific agglutinins, but also there was found a corresponding specificity in the effect of antistreptococcus serum in its protection of inoculated animals. Tunnicliff [2] showed, first, that green-producing streptococci—generally regarded as heterogeneous—may be reliably differentiated by means of the opsonic reaction, and recently she demonstrated that hemolytic streptococci also are differentiated by this reaction. By means of opsonin and agglutinin tests, she found that hemolytic streptococci from the throat early in scarlet fever are different from hemolytic streptococci from other sources; that they may differ from streptococci recovered during convalescence, and further that hemolytic streptococci in complicating lesions usually differ immunologically from those from the throat in the acute stage of scarlet fever. Using the type serums and methods of Dochez, Avery and Lancefield, Bliss [3] found that 80 per cent. of the hemolytic streptococci isolated from the throat in scarlet fever were agglutinated by the corresponding immune serum, none of these strains being agglutinated by serums produced by the injection of other types of streptococci. It may be concluded that most of the hemolytic streptococci in the throat in scarlet fever belong to a specific biologic group as determined by immune reactions, and the question once more presents itself whether scarlet fever, after all, is not a streptococcus disease.

As specific biologic groups of hemolytic streptococci without doubt exist, it now remains to carry the work further and to include other acute infections in which hemolytic streptococci predominate in order to deter-

3. Rees, M. H.: The Influence of Pituitary Extracts on the Absorption of Water from the Small Intestine, Am. J. Physiol. 33: 43 (Aug.) 1920; ibid. 45: 471 (March) 1918.

1. Dochez, A. R.; Avery, O. T., and Lancefield, R. C.: J. Exper. Med. 30: 179 (Sept.) 1919.
2. Tunnicliff, Ruth: Specific Nature of the Hemolytic Streptococcus of Scarlet Fever, J. A. M. A. 74: 1386 (May 15) 1920.
3. Bliss, W. P.: Bull. Johns Hopkins Hosp. 31: 173 (May) 1920.

mine, if possible, whether specific streptococci cause specific diseases and whether specific immune serum can be developed that will have therapeutic value.

Current Comment

THE ALKALI RESERVE OF THE PLASMA IN SURGICAL SHOCK

Among the problems of medical and surgical significance emphasized by the exigencies of the World War, the nature and management of shock early assumed conspicuous importance. The progress of the interallied investigations undertaken to solve the important questions at issue has been recorded from time to time in THE JOURNAL. Very early the possibility that "acidosis" is a potent factor in the production of surgical or traumatic shock was brought to the attention of investigators in this field of clinical research. The fact that alkaline fluids had long been recommended as exceptionally effective in restoring animals that are in state of shock gave added probability to the assertion that acidosis is a causal feature in the genesis of this clinical condition. The view gained considerable popularity through its early championship by Cannon. Little by little, however, the untenability of the acidosis theory has been revealed. The fall in the alkali reserve of the blood plasma is in many cases merely an incident, rather than a preexisting cause, of the lowered sensibility and blood pressure. It may attend anesthesia uncomplicated by "shock" symptoms from which complete recovery can be attained. Recently Raymund [1] of the University of Chicago recorded the results of extensive experiments which showed that when the shock ensued suddenly, the fall in the alkali reserve of the plasma was relatively insignificant. When shock was slow in appearing after trauma, the plasma might even show a high alkali reserve for some time after the animal examined had become virtually moribund. There was apparently no correlation between the type of shock, i. e., its relative severity, and the degree of alkali depletion. In other words, the condition of the animal could not be gaged by its alkali reserve. Corroboratory is the added fact that injections of acid solutions into the circulation—surely a phenomenon resembling acidosis—failed to produce shock or any allied condition.

INSECT POWDER

When the elusive flea, the nocturnal bedbug or the festive cockroach turns up his nose at insect powder instead of lying on his back and turning up his toes, there is a reason. The reason, according to a recent report from the Bureau of Chemistry of the Department of Agriculture, is adulteration and sophistication of the insect powder. Real insect powder, composed of pyrethrum, representing the powdered flowers of the chrysanthemum, will invariably cause the aforementioned species of insects to shuffle off this mortal coil. As far back as 1856, it was discovered that the powder of these flowers had the peculiar power to attract insects and then numb or kill them. Although early writers believed it harmless to man and larger animals, isolated case reports are available of harmful effects following the absorption of fairly large doses. Naturally, any substance with such potent properties early became the subject of exploitation and, unfortunately, insect powder appears to have been extensively adulterated since it first entered into commerce. From the first this adulteration consisted of mixture with the powder of other flowers, and with the grinding up of the stems and leaves as well as the potent portion of the plant. More recently, barium chromate, lead chromate, yellow ocher and similar substances have been used as adulterants. Because of the nature of the substance, the determination of the purity is a difficult matter. The best test is to try it out on the insects. If it does not affect one or more species within a fairly reasonable amount of time, it is heavily adulterated. If, on the other hand, in the words of Glover, when sprinkled over them or placed in a circle and they are made to pass over it, for a few steps they appear very lively, but soon stagger, and after a few struggles fall over and soon cease to live, then it is good insect powder. Microscopically, certain determinations may be made by those well informed as to the cellular characteristics of the plants and, chemically, the ash of the powder may be examined for foreign chemical substances. All of these methods the Bureau of Chemistry has summarized in a recent pamphlet.[1] Genuine insect powder kills insects.

STRENGTH TESTS

E. G. Martin [2] of Stanford University, who has devised strength tests well suited to determining the extent of muscular impairment in persons, chiefly children, afflicted with infantile paralysis, has lately studied the performance of large numbers of workers, both male and female, under conditions in which something of the effect of external factors could be ascertained. The most obvious of such influences are climatic. It appears that certain days are more favorable to high output than others, and the influences that underlie the differences are such as to affect all workers in a single environment. Martin's data suggest that the temperature at which work is carried on is important. There is evidence that persistent exposure to temperature above 30 C. (86 F.) is unfavorable to strength. Relative humidities between 70 and 80 per cent. appear to favor high strength showing. Other climatic influences have not been demonstrated to be operative. Hence they need not be taken into consideration at present in the application of the strength test as a criterion of health. Evidence has been collected to show that the impairment of physique due to exhaustion may be so severe as to require considerable time of rest for recovery to normal strength. There is evidence that the effects of fatigue are persistent, in that they

1. Raymund, B.: The Alkali Reserve in Experimental Surgical Shock, Am. J. Physiol. 53: 109 (Aug.) 1920.

1. McDonnell, C. C.; Roark, R. C., and Keenan, G. L.: Insect Powder, Bulletin 824, United States Department of Agriculture, Government Printing Office, 1920.
2. Martin, E. G.: Strength Tests in Industry, Pub. Health Rep. 35: 1895 (Aug. 13) 1920.

tend to appear on the day following a day of fatigue. Severe fatigue is more likely to show this persistent effect than is mild fatigue. Days of poor physical condition are more likely to be followed by days of fatigue than are days of good condition, or days on which no demonstrable fatigue appears. Incidentally, Martin's measurements support the thesis that with men, laborious operations tend to develop approximately equal strength among the workers; in other words, there is a "standard" strength for each job. Among women and men alike, demonstrable fatigue is more manifest in weaker workers than in stronger. The most pronounced indications of fatigue are presented in an operation requiring close concentration and carried on in a disagreeable environment.

NONALCOHOLIC EXTRACTS

As most physicians know, the passing of John Barleycorn was not wholly complete. The "kick" of alcohol still remained in many pharmaceutical preparations, more or less medicated, and in the household extracts of vanilla, lemon and sundry other flavors utilized for putting the taste in cakes and ice cream. But step by step Mr. Barleycorn is being wholly urged toward complete submergence. At the last session of the American Chemical Society, recently held in Chicago, it was reported in the section on agricultural and food chemistry that such extracts can now be made with glycerin as a substitute for alcohol. The thrifty housewife need no longer fear the possibility of fastening the rum habit on the younger generation. When mince pie has been thoroughly denatured, alcohol will remain in the home merely as a fuel for chafing dishes —and these are no longer fashionable.

STATE REGULATION OF INFLUENZA

The epidemic of influenza of 1918 caught many states and health departments totally unprepared. As there were no adequate regulations aside from the powers of the boards of health for handling this disease, much emergency legislation ensued. It is generally realized that there is a wide divergence of opinions and regulations in the various states and municipalities concerning this disease. In an endeavor to ascertain points for a model control of the subject, the state of Minnesota[1] sent a questionnaire to state health officers in each of the states covering the general points of greatest importance. It was found that 97.5 per cent. of forty states that replied have some method of reporting the disease: in 74.4 per cent. to the local health officer and in 12.8 per cent. to the state health officer. There is quite a diversity in the rules regarding quarantining and placarding. Isolation or quarantine is maintained in twenty-four states, the time varying from two days after return to normal temperature to fourteen days after return to normal temperature, and in five states until complete recovery from all clinical symptoms. Influenza is placarded in fourteen states, not placarded in nineteen, and controlled by local authorities at their option in five. There is no definite ruling in many states regarding the policy of closing public places in epidemics. The tendency is for the state health officers to shift these responsibilities to the local health authorities. An interesting point brought up in the questionnaire was: "Do you recommend the use of serum (*a*) as a prophylactic, (*b*) as treatment?" One state recommended its use for prophylaxis only, and no other state recommended it at all, although some answered that they recommended antipneumococcic vaccine as a prophylactic against complications. This analysis is valuable as an indication of the necessity for greater knowledge of the disease, its etiology, mode of transmission, duration, etc., before adequate control can be effected.

1. Peeler, L. W.: Comparative Study of State Regulations for the Control of Influenza, Pub. Health Rep. 38: 2155 (Sept. 10) 1920.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Graduate Course at Tuskegee.—A graduate course in medicine and surgery for colored physicians will be given under the auspices of the John A. Andrew Clinical Society, in cooperation with the John A. Andrew Memorial Hospital at Tuskegee.

Health News.—Dr. Samuel Terrell Hardin, Northport, has been appointed assistant health officer for Northport precinct No. 10, and for precincts 6 and 7.——Dr. Surry Foster Mayfield, Tuscaloosa, has been appointed assistant county health officer to have charge of the free clinic and laboratories.

Constitutionality of Birmingham Ordinance Upheld.—Constitutionality of the Birmingham ordinance, providing for examinations of persons suspected of suffering from venereal diseases, and quarantine and treatment of such persons when necessary, has been upheld in the circuit court by Judge Horace C. Wilkinson.

ARKANSAS

Hospital Site Purchased.—A site for the new Baptist State Hospital has been purchased. The site includes the old Little Rock Sanatorium, which will be remodeled and put to temporary use.

Instructor Resigns.—Prof. H. E. Morrow of the department of chemistry of the University of Arkansas, Little Rock, has resigned to accept the chair of biologic chemistry in the University of Tennessee College of Medicine, Memphis.

COLORADO

Personal.—Dr. Mary Noble, Colorado Springs, has been appointed chief of the division of child health of the State Health Department of Pennsylvania.

People to Vote on Psychopathic Hospital.—At the November elections, the people of Colorado will vote on the question of appropriating funds for a psychopathic hospital. A sufficient number of signatures have been secured on a petition to have the question placed on the ballot.

School of Tuberculosis.—The Colorado School of Tuberculosis, Colorado Springs, Dr. Gerald Bertram Webb, president, initiated a course to extend over six weeks, beginning September 10. Sanatoriums and laboratories of the Pike's Peak region will be used for clinical purposes. The schedule will include lectures and individual instruction, and more than half of the course will be in the form of clinics to be given at four sanatoriums by the teaching staff.

FLORIDA

Personal.—Dr. Eustis R. Marshburn, Chattahoochee, for two years a member of the medical staff of the Chattahoochee Hospital, has been appointed physician to the state prison farm at Raiford.

Hookworm Disease.—At the recent encampment of the Florida National Guard at Camp Johnston a partial survey of the troops by representatives of the state board of health under the direction of Dr. Daniel Currie Campbell disclosed that 25 per cent. of the men were infected with hookworm or other intestinal parasites.

ILLINOIS

Anti-Tuberculosis Association Opens Office.—The Hancock County Anti-Tuberculosis Association has established offices in the court house at Carthage. The county nurse, Miss Josephine Packer, is in charge.

Sanatorium Seeks Funds.—The trustees of the Macon County Tuberculosis Sanatorium are planning to submit to the voters in November a request for approval of an additional levy to build and maintain the hospital.

Chicago

American Chemical Society Meeting.—At the regular meeting of the Chicago Section of the American Chemical Society at the City Club, September 24, Dr. Arthur I. Kendall, dean of the Northwestern University Medical School, read a paper on "Bacteria as Chemical Reagents."

Field Day.—The North Side Branch of the Chicago Medical Society held a field day, September 15, at St. Mary's Training School, Desplaines, which was attended by a large number of the members of the Chicago Medical Society. After a tour of the building and grounds, several games of basket ball and a game of volley ball were played. An airship taxicab was exhibited. There was a drill by the training school battalion, after which a basket supper was served on the lawn. A brief business meeting was held, followed by moving pictures on the lawn, and dancing. Dr. Austin A. Hyden is president, and Dr. Ed White was chairman of the sports committee.

KANSAS

Health Officer Appointed.—Dr. Charles E. Brown, Leavenworth, has been appointed county health officer to fill the unexpired term of Dr. Cyrus D. Lloyd.

County Votes Bonds for Hospital.—Lyon County has voted $200,000 in bonds for a county hospital at Emporia. It is thought that still further funds will have to be provided because of the increased cost of construction.

MARYLAND

Sanatorium for Convalescents.—Mercy Villa Sanitarium, a new home for convalescing patients, has been opened by the Sisters of Mercy for the reception of patients at Govans, Baltimore.

Night Clinic Opened.—The Baltimore City Health Department has opened a night clinic for persons having tuberculosis, at 2000 North Charles Street, Baltimore. It will be open every Tuesday evening for the benefit of those who because of their occupations are unable to take advantage of the day clinic.

Indictment of "Associated Doctors."—Papers for the extradition of "Dr." Guy J. Payne, one of the "associated doctors" whose offices in Baltimore were raided by detectives last winter, have been issued. Payne was arrested in Philadelphia recently. Other members of the associated doctors are Dr. John Newhall Kirk, Philadelphia, and Dr. Grant F. Hartzell, Baltimore, who are out on $2,500 bail each awaiting grand jury action.

Personal.—Dr. Jean Edward Bigwood, Brussels, Belgium, has matriculated at the Johns Hopkins Medical School and will become a special student under Dr. William S. Thayer, in the department of internal medicine. Dr. Bigwood, who received the degree of M.D. at the University of Brussels last June, is a member of the educational foundation, Commission for Belgian Relief. Dr. Louis H. Naylor, Pikesville, has gone to Belgium as the exchange for Dr. Bigwood, and will study at the University of Liége.

Joint Society Meeting.—A joint meeting of the Baltimore County Medical Association and the Maryland Psychiatric Society was held at the home of Dr. John Winfield Harrison, president of the Baltimore County Medical Association, at Middle River, September 15. Following a luncheon, Dr. Leslie B. Hohman, resident physician at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital, read a paper on "Epidemic Encephalitis; Its Psychotic Manifestations," and Dr. William Rush Dunton, Jr., Sheppard and Enoch Pratt Hospital, spoke on "The Psychosis of a Famous Portraitist."

MASSACHUSETTS

Epidemic of Poliomyelitis.—It is reported that an epidemic of poliomyelitis is prevailing in Massachusetts. A total of 111 cases were recorded up to September 13. The city council of Boston has appropriated $10,000, on recommendation of the health department, to combat the epidemic.

Surgical Association Proposed.—Definite plans are under way for the organization of a Massachusetts state surgical association for the purpose of encouraging frequent meeting and the holding of clinics by the surgeons of the state. The Boston City, Massachusetts General, Women's Free and Peter Bent Brigham hospitals have already agreed to give special surgical clinics for the society. Dr. S. Chase Tucker, Peabody, is secretary of the organization committee.

MICHIGAN

Tuberculosis Clinic.—The first of the free tuberculosis clinics in Lenawee County was held early in September at Tecumseh under the auspices of the Lenawee chapter of the American Red Cross.

Detroit Votes Filtration Plant.—At the elections held August 31, a bond issue of $12,000,000 for the extension of the water works was approved by the voters of Detroit. The new plans call for a plant capable of filtering 400,000,000 gallons of water daily.

NEW JERSEY

Personal.—Dr. Howard Iszard, Glassboro, sustained minor injuries when his automobile was wrecked at a grade crossing on the West Jersey and Seaside Railroad.

State Appropriation for Hospital.—Plans for the expenditure of $800,000 at the Morris Plains Hospital for Insane have been approved by the state house commissioners.

NEW YORK

Typhoid Epidemic.—Reports from Seneca Falls indicate that a serious epidemic of typhoid fever is raging there. Health authorities are taking steps to cope with the disease, of which more than fifty cases have already been reported.

Veterans' Camp Closes.—The canvalescent camp for American soldiers, sailors and marines at Bear Mountain, which has been operated during the summer months by the Tuxedo Park chapter of the American Red Cross under the auspices of the War Camps Community Service, is to be closed shortly. The camp has entertained more than 1,000 wounded men, most of whom are students at the federal vocational schools, since its opening in June.

State Drug Clinics Closed.—All clinics established by the State Narcotic Drug Control Commission in sixteen cities were ordered closed by Commissioner Walter R. Herrick, because of the refusal of hospitals to receive drug addicts to complete the treatment begun by the clinics. The next legislature will be asked to construct at least three state hospitals for drug addicts, of whom, it is estimated, there are at present approximately 37,000 in the state.

State Hospital for War Veterans.—As the result of a conference of Governor Smith and state officials with R. G. Cholemeley-Jones, director of War Risk Insurance, it has been decided to erect a state hospital for the care and treatment of World War veterans who have become insane. In order to carry out the plan the legislature will be asked to appropriate about $1,000,000. The state will provide the hospital buildings, while the federal government will operate and maintain the institution under the supervision of the War Risk Insurance Bureau. It is estimated that there are in the state today about 900 ex-service men who are demented as a result of the war. Of these, 474 are in state hospitals, while the rest are in other institutions. The proposed hospital will probably be located on Long Island or in New York.

Industrial Training for Convalescent Tuberculous Soldiers.—The Federal Vocational Board and the National Tuberculosis Association are cooperating with the New York Tuberculosis Association in conducting a workshop and training school for the industrial rehabilitation of ex-service men convalescent from tuberculosis whose disease has reached the arrested stage. The shop is incorporated under the name of the Reco Manufacturing Company, Inc., and is located at 458 Pierce Avenue, Long Island City. The object is to teach a trade that will not be injurious and in which, after the men have learned to make marketable goods, they will be paid the same wages as others doing the same work. The training does not affect any compensation that these men are now receiving from the

government. In order to gain admission men must come in person to the New York Tuberculosis Association, 10 East Thirty-Ninth Street, New York City. Physicians having under their care tuberculous ex-service men who might be benefited by such work are urged to send them to this training school.

New York City

Memorial Services to Dr. Cantor.—Memorial exercises for Dr. Bernard Cantor, who died at Jarmolinetz, Urkaine, July 5, while on a mission for the Joint Distribution Commission for the Relief of Jewish War Sufferers, were held at Carnegie Hall, September 9.

Estate of Dr. Jacobi Settled.—The executors of the estate of Dr. Abraham Jacobi have applied to the surrogate's court to have the estate judicially settled. The application shows that his estate amounted to $333,099. The New York Academy of Medicine has received a cash bequest of $5,000 and a library valued at $4,567 in accordance with the conditions of Dr. Jacobi's will.

Change in Care of Poliomyelitis Cases.—A change in the city's plan of treating poliomyelitis cases has been put into effect. Hitherto about 500 children have been treated at the clinics of the city hospital three times a week, but the new plan provides that these patients shall be admitted to the hospitals as resident patients and that a public school teacher shall be provided for each hospital taking these children. The fact that many of the city hospitals are running below bed capacity makes the reception of these several hundred cases possible. The hospitals accepting such cases include Bellevue and the Allied Hospitals, City, Metropolitan, Kings County, Cumberland Street, Coney Island, Greenpoint and Seaview hospitals.

Health Department Takes Hand in Housing Shortage.—When the special session of the legislature convenes next month to consider the ways and means of meeting the housing shortage, Health Commissioner Copeland plans to go before that body with the following suggestions: That the state and city be authorized by the legislature to engage in the purchase of land and the construction and rental of dwellings; that there be a renovation of existing insanitary tenements as contemplated by the State Reconstruction Commission and the Joint Legislative Housing Committee; that immediate steps be taken to obtain the cooperation of labor and those in control of building materials; that there be a modification of existing interest and taxation statutes, so that private capital may be made available for housing, and that unnecessary and selfish building be prohibited. One of the chief recommendations to be made is the appointment of a Central Housing Commission, with power to handle rent problems, to determine what is essential construction, to pass on all plans for building operations, and to seize houses withheld from occupancy because of exorbitant rent and rent them to the homeless at reasonable prices. The health department holds that the vital relation of housing to public health makes this a problem with which public health organizations should concern themselves.

NORTH CAROLINA

New Health Officer.—Dr. Robert B. Wilson, Swannanoa, has been appointed full-time health officer of Buncombe County, to succeed Dr. William H. Scruggs, resigned.

Biltmore Hospital to Be Enlarged.—The Clarence Barker Memorial Hospital and Dispensary, Biltmore, has purchased adjoining property, including the residence of Rev. R. R. Swope, for a consideration of $25,000. The Swope residence has been converted into a nurses' home.

Antityphoid Campaign.—An antityphoid campaign is being carried on in Mecklenburg County under the direction of Dr. Charles S. Mangum. Almost 6,000 persons took the full course of three vaccinations. Physicians in the communities volunteered their service in aid of the campaign.

OHIO

Tuberculosis Society Headquarters.—Permanent headquarters will be established in November for the Columbus Society for the Prevention and Cure of Tuberculosis, at Washington Avenue and Oak Street.

Personal.—Dr. Frank P. Stafford has been appointed to serve as physician for the inmates of the county infirmary, Lima.——Dr. Frank C. Anderson, assistant superintendent of the state sanatorium, Mt. Vernon, has been appointed superintendent, succeeding Dr. Stephen A. Douglass, resigned.——Dr. John W. Haines, Croton, who recently underwent a serious operation at Columbus, is reported to be improving.——Prof. George N. Stewart, director of the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University, Cleveland, had conferred on him the degree of Doctor of Laws at the recent commencement exercises of the University of Edinburgh.——Dr. David Marine, associate professor of experimental medicine in Western Reserve University, has been elected director of laboratories in the Montefiore Home and Hospital, New York.

PENNSYLVANIA

New Board of Health at Lemoyne.—A new board of health consisting of Dr. John E. Beale, and Messrs. Samuel Sweigart, Frank Kennedy, Charles Horner and L. S. Beam, has been named by the president of the borough council of Lemoyne to succeed the board of health recently dissolved by State Health Commissioner Edward Martin on the grounds of inactivity.

Philadelphia

Personal.—Dr. Joseph M. Spellissy of the staff of St. Joseph's Hospital was severely injured in an automobile accident at a grade crossing near Point Pleasant Beach, N. J., September 12. Dr. Spellissy is still critically ill.——Dr. William W. Keen has been decorated by King Albert of Belgium with the Belgian Order of the Crown, the decoration being conferred at a dinner tendered Dr. Keen in Brussels, in August.——Dr. Ernest LaPlace has been appointed delegate to the fifteenth annual congress against alcoholism in Washington, September 21 to 26.

Smallpox Cases Discovered.—Almost 5,000 persons were quarantined and vaccinated in West Philadelphia, September 10, in the district bounded by Market and Race and Fifty-Eighth and Sixtieth streets, following the discovery of two cases of smallpox. Both victims were colored men, one of whom is reported to have had a slight case of it for a month and had visited various sections of the city, while the other had been ill two weeks. The department of health is considering prosecuting the colored physician who attended the men for not reporting the cases promptly.

SOUTH CAROLINA

Negro Hospital Opened.—St. Luke's Hospital for negroes, Greenville, has been formally opened. The hospital will be in charge of Mary H. Bright, recently superintendent of the Good Samaritan Hospital in Columbia.

Personal.—Dr. Fitzhugh P. Salley, Union, who has been in the City Hospital suffering from pneumonia, has recovered sufficiently so that he can return to his home.——Dr. George Dawson Heath has been appointed official surgeon for Clemson College, succeeding Dr. Alexander M. Redfern, who retired after twenty-seven years of service.

City Commissioner Controls Clinic.—As the result of efforts by the Greenville city board of health, the entire control of the free venereal clinic passes from the state board of health to City Health Commissioner Clarence E. Smith. Drs. B. L. Chiley and James E. Daniel succeed Drs. Machen T. Moore and Theodore M. Davis in taking charge of the clinic.

Plague Prevention Campaign.—In an intensive campaign for the destruction of rats along the water front of Charleston, under the direction of Dr. Charles V. Akin, official figures recently announced, indicate that almost 6,000 rodents were killed. Although no plague was found in any of the animals it is believed that the campaign will have great influence in preventing trichinosis and other parasitic diseases.

TENNESSEE

Home for Tuberculous Soldiers.—It is reported that the director of the Bureau of War Risk Insurance has announced that the Mountain Branch National Soldiers' Home at Johnson City is to be converted into a sanatorium for discharged tuberculous soldiers.

Meeting of Social Agencies Council.—The Tennessee State Council of Social Agencies was organized recently at Nashville for the purpose of consolidating efforts of all societies engaged in social service and welfare activities. One of the advantages is that any agency entering a community for welfare work will have the privilege of utilizing machinery already in existence. The first meeting of the council was held in Knoxville, September 13. Tennessee's health program, its health centers, rural sanitation, health in state institutions, the state program against tuberculosis and venereal diseases were topics of discussion.

TEXAS

New Industrial Hospital.—The Gulf Sulphur Company at Gulf is constructing a tile-stucco hospital.

Memorial Sanatorium.—The government has agreed to accept the memorial hospital, now under construction at Kerrville, for tuberculous ex-service men. The building will be completed as soon as possible and the sanatorium will be operated by the U. S. Public Health Service.

Compulsory Vaccination Urged.—City commissioners of Waco have under advisement an ordinance providing for compulsory vaccination. Petitions have been presented asking that the measure be left to a vote of the people, and it is expected that the commission will order the election.

Baylor Medical College Reorganized.—Complete reorganization of the teaching and administrative staff of Baylor Medical and Dental Colleges was made during the summer. Dr. Edward H. Cary, Fort Worth, has resigned as chief of the medical school to become chairman of the advisory board and chairman of the faculty, and Dr. Walter H. Moursund was chosen acting dean.

WISCONSIN

New Health Center.—The first health center in western Dane County has been opened at Mt. Horeb, under the superintendency of Miss Mabel Danielson.

New State Officers.—At the annual meeting of the Wisconsin State Medical Society held in LaCrosse, September 10 and 11, the following officers were elected: president, Dr. Henry W. Abraham, Appleton, vice presidents, Drs. Mathias A. McCarthy, LaCrosse, John P. Koehler, Milwaukee, and Rolla U. Cairns, River Falls; secretary, Dr. L. Rock Sleyster, Wauwatosa (reelected), and treasurer, Dr. Sydney S. Hall, Ripon. The feature of the meeting was a free tuberculosis clinic at which hundreds of men, women and children were examined, and those found to have the disease were given an opportunity to apply for admittance to the county sanatorium.

CANADA

Public Health Notes.—For the week ending September 4, Montreal had sixty-eight cases of contagious disease, of which twenty-two were tuberculosis with fifteen deaths.——After more than a year, Toronto is at last free from smallpox cases.——Dr. Helen Boyle, an eminent English neurologist, now in Montreal, recently lectured on her experiences in Serbia with the expedition organized by Dr. Berry, senior surgeon of the London Free Hospital, England.

Personal.—Dr. Archie N. Jenks, Montreal, has returned from Boston where he has been pursuing studies in the hospitals and in Harvard University.——Dr. C. W. Bibbs, Fort Dearborn Hospital, Chicago, was in Toronto recently.——Brig.-Gen. Arthur E. Ross, M.P., Kingston, Ont., sometime head of the medical services in France for the Canadian Expeditionary Forces, has been appointed superintendent of the General Hospital of that city, to succeed Dr. Donald C. Matheson, Kingston, who has resigned, to take up his duties with Queen's University.

Studying Industrial Hygiene.—Dr. John J. R. Macleod, Toronto, professor of physiology in the University of Toronto, and vice dean of the medical faculty, is chairman of the Committee on Industrial Hygiene in Canada. With him are associated Prof. Archibald B. Macallum, members of departments of physiology and psychology in various universities in Canada, and one representative each of the department of labor, Ottawa, of industry, and women's organizations. A secretary of the committee is established in the medical department of the University of Toronto.

GENERAL

Stops Use of Whisky in Medicines.—Dr. R. W. Stone, prohibition director of Chicago, announced September 10, that no more withdrawals of whisky for the manufacture of medicines will be approved.

Southwestern Physicians to Meet.—The annual meeting of the Medical Association of the Southwest, which includes physicians from Kansas, Missouri, Oklahoma, Arkansas and Texas, will be held in Wichita, Kan., November 22 to 24.

Bubonic Plague.—A new case of bubonic plague was discovered at Pensacola, Fla., following the investigation of the death of a negro. This brings the total cases in the city to ten, six of these fatal.——The twelfth case and ninth death of bubonic plague at Galveston, Texas, was reported, September 7.

Medical Organizations to Meet.—The Tri-State District Medical Society will hold its annual meeting, October 4 to 7, at Waterloo, Iowa, under the presidency of Dr. George Van I. Brown, Milwaukee.——The annual meeting of the Northern Tri-State Medical Association of Michigan, Indiana and Ohio will be held in Fort Wayne, Ind., October 26, under the presidency of Dr. Charles C. Terry, South Bend, Ind.

American Electrotherapy Association Elects.—The American Electrotherapeutic Association at its thirtieth annual meeting held in Atlantic City, September 14-17, elected the following officers for the ensuing year: president, Dr. Byron Sprague Price, New York City; vice presidents, Dr. Virgil C. Kinney, Wellsville, N. Y.; Drs. Chris M. Sampson, and Charles R. Collins, Washington, D. C.; Dr. Douglas A. Cater, East Orange, N. J.; Dr. William T. Johnson, Philadelphia; treasurer, Dr. J. Willard Travel, New York City; secretary, Dr. A. B. Hirsh, New York City.

To Vaccinate Immigrants.—Orders have been issued to all officers of the U. S. Public Health Service on duty at European ports not to permit any third class passengers to depart for the United States without having been vaccinated against smallpox. Four additional public health officers have been sent to Europe, making a total of ten now on duty there. Asst. Surg.-Gen. Rupert Blue will remain in Paris throughout the winter to perfect the organization of the Public Health Service in an endeavor to lessen the danger of the carrying of smallpox, typhus fever and other contagious diseases to this country.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Free Hospital, Detroit, $25,000; Harper Hospital, Detroit, $10,000, by the will of Mr. James W. Walker, Detroit.

To establish a hospital in Fairfax, S. C., $300,000, by the will of Dr. William J. Young, Fairfax.

Mt. Sinai Hospital, New York, $25,000, by the will of Henry L. Einstein.

Temple University, Philadelphia, the income of the estate of John K. Schaffer, amounting to $49,000, to be paid ultimately to promote the study of nervous diseases.

Clark Memorial Home, Springfield, Ohio, $2,000, by the will of Mrs. Achsa E. Blee, Springfield, Ohio.

St. Luke's Hospital, Newburgh, N. Y., and Thrall Hospital, Middletown, N. Y., each $5,000, by the will of Col. Thomas W. Bradley.

Nurses Home Fund, Hazleton State Hospital, a donation of $1,000 from Mrs. Eckley B. Coxe, of Drifton, Pa.

Conference on Venereal Diseases.—The first of the series of regional health conferences authorized by the International Health Conference at Cannes will be held in Washington, D. C., December 6 to 13, under the joint auspices of the U. S. Interdepartmental Social Hygiene Board, U. S. Public Health Service, American Red Cross and American Social Hygiene Association. Dr. William H. Welch of Johns Hopkins University will preside. The conference will review past experiences and existing knowledge as to the cause, treatment and prevention of venereal diseases, will deal with administrative and research problems and will consider the topic of venereal diseases from these four aspects: (1) medical measures; (2) enforcement of repression and protection laws; (3) sex education; and (4) provision of recreation facilities. An attempt to work out a feasible three-year program for each of the countries in the western hemisphere will be made.

FOREIGN

Institutes for Hydrobiologic Research in Italy.—Professor Mazzerelli has founded an *osservatorio idrobiologico* on Lake Fusaro, near Naples, and Professor Carazzi another near Pisa. The one near Messina, founded in 1915, is being enlarged.

Hookworm in Jamaica.—A well organized campaign against hookworm is being carried on in Jamaica under the direction of Dr. B. E. Washburn, assisted by Dr. L. Oliver Cresswell, supervising sanitary officer. Owners of large sugar estates are zealously assisting in this campaign.

Prizes for Works on Hygiene.—The Italian Red Cross offers a prize of 5,000 lire for the best work on hygiene to educate the public in ways and means for healthy, vigorous and constructive living. It also offers a similar amount for a work on hygiene and social welfare work for the use of the schools. The latter must not be larger than ten printed octavo forms. Competing articles must be received at the headquarters, Ufficio Propaganda della Croce Rossa Italiana, Via Toscana N. 10, Rome, before June 30, 1921.

Investigation of the Work of the French Military Medical Service During the War.—The *Presse médicale* relates that the Union des Syndicats médicaux de France has decided

to make an investigation of the work of the Service de santé during the war, and appeals to physicians that were mobilized to send in data bearing on the subject. A questionnaire is to be sent to each one asking for details in regard to grade, service, etc., not only of the one addressed but of all medical men serving in his environment on a different specified date for each of the five years of the war.

Subjects for Prize Competition.—One of the prizes offered by the Berlin medical faculty is for the best work on explantation, that is, the capacity of living tissue, especially epithelium, to maintain its vitality and power of reproduction outside of the living body, with criticism of the work hitherto done in this line. The Munich medical faculty has selected as the topic for competition research on the epiphysis cicatrices of the human skeleton. The veterinary school offers a prize for work on the anatomy of the external ear in domestic animals, to aid in constructing an otoscope for animals, especially for carnivora.

Abortive Treatment of Syphilis.—The German Dermatologische Gesellschaft is organizing a collective inquiry on the abortive treatment of syphilis. The *Deutsche medizinische Wochenschrift* brings an appeal to all colleagues who are interested in the study of this most important problem in the treatment of syphilis and those willing to aid by contributing statistical material are requested to ask for a questionnaire at the address of the headquarters of the society, D. D. G., Maxstrasse 1, Breslau. Kreibich of Prague is to analyze the data received before Feb. 1, 1921, and to present his report at the next meeting of the society during the summer of 1921, at Hamburg.

Congress for Medical History.—This meeting was held as announced with a comparatively large attendance at Antwerp early in August, on the tricentennial anniversary of the founding of the Cercle Médical of Antwerp, Dr. Tricot-Royer in the chair. The *Scalpel* of Brussels gives an interesting summary of the transactions. Dr. Thompson described the history of medicine in England from the sixth to the eleventh centuries, his articles based on some MSS in the British Museum. Giordano of Venice told of study of anatomy on the living subject (criminals and alien prisoners). and Albiñana described the cooperation of Spain in the prosperity of the ancient Montpellier medical school. Jeanselme of Paris related the history of alcoholism from the fifth to the tenth century, Fasseyeux the care of the insane in the seventeenth and eighteenth centuries and Prof. Laignel-Lavastine described from some ancient documents the cult of Priapus. Delaunais discussed the fads and charlatans of the eighteenth century, and Trétrop traced otorhinolaryngology back to the days of the Pharaohs. Others recalled the ancient history of obstetrics, ophthalmology, surgery, etc., and Wickersheimer showed that one of the figures in the antique painting of Saint Anthony of Grünewald is a typical case of pellagra. Dr. Meeus of Antwerp described the long and curious history of the colony for the insane at Gheel, where the "no restraint" was in force long before the insane had lost their chains elsewhere. Eight sessions were held, and another congress was planned for 1921, to meet at Paris.

Deaths in Other Countries

Lieut.-Gen. Sir. **William Babtie**, C.B., C.M.G., V.C., London, England; L.R.C.P., L.R.C.S., Edinburgh, 1880; M.B., Glasgow, 1880; aged 61; principal director of medical services in the Mediterranean during the operations in Gallipoli, Egypt and Salonika in 1915-1916; died in Belgium, about September 14.——Dr. **M. Hertant** of Brussels, a pioneer in biologic research, applying the laws of physical chemistry to the problems of embryology, aged only 32.——Dr. **M. T. Podestá**, professor at the University of Buenos Aires, secretary of the national public health service and author of several popular novels, besides serving in the legislature, aged 67.——Dr. **Brohl** of Cologne.——Dr. **Franz** member of the board of the Leipzig League and of the antiquackery committee of the German Aerztevereinsbund, aged 65.——Dr. **E. Lombard**, a prominent otologist of Paris, known by the sign called by his name for detecting simulation of deafness by raising the voice. His last work was a report of study of equilibration in aviators. For fifteen years he was the director of the *Annales des maladies de l'oreille et du larynx*.——Dr. **E. A. Helbig**, a collaborator on the *Siglo médico* of Madrid.——Dr. **Cicero Rodrigues Ferreira** of Bello Horizonte, Brazil, chief of the local public health service and founder of the local medical school, aged 61.——Dr. **J. P. Nuel**, professor of ophthalmology at the University of Liége, aged 73.——Dr. **L. de Boucaud**, a surgeon of Bordeaux.

Government Services

Appointment of Medical Officers

The War Department announces the appointment of the following emergency officers in the Medical Corps of the Regular Army; this is a second list of the medical men who have qualified in the July, 1920, examinations for commissions in the Medical Corps; the names of other successful candidates will be printed in THE JOURNAL from time to time:

MAJORS

A. N. Baggs, Oteen, N. C.
G. H. Boyer, Ft. Bliss, Tex.
A. M. Brailsford, Houston, Tex.
D. B. Brinsmade, Camp Jackson, S. C.
Y. E. Coville, Nogales, Ariz.
W. W. Conger, Detroit.
R. H. Cox, Chicago.
A. S. Dabney, Nashville, Tenn.
A. H. Eber, Camp Grant, Ill.
E. C. Greene, Norfolk, Mass.
M. W. Hall, Ft. Sam Houston, Tex.
H. B. Hanson, Camp Grant, Ill.
C. D. Holmes, Washington, D. C.
R. R. Hunter, Charlotte, N. C.
J. Littig, Camp Taylor, Ky.
W. H. Lloyd, Camp Meade, Md.
J. A. Lloyd, Washington, D. C.
J. P. Long, Camp Gordon, Ga.
T. L. Long, Kelly Field, Tex.
F. C. Longmore, Kelly Field, Tex.
J. J. McCormick, Washington, D. C.
T. R. Marshall, Camp Dix, N. J.
W. H. Mitchell, New London, Conn.
H. B. Montgomery, Washington, D. C.
R. T. Morris, Washington, D. C.
E. L. Norvall, Douglas, Ariz.
E. L. Parmenter, Mondovi, Wis.
A. L. Parsons, Jr., Louisville, Ky.
R. D. Ridlon, Portland, Me.
D. M. Roberts, New Richmond, O.
R. B. Shackelford, The Plains, Va.
P. R. E. Sheppard, Ft. Bliss, Tex.
A. E. Sherman, Aurora, Ill.
C. G. Sonder, Chicago.
G. F. Suker, Chicago.
E. L. Titus, Camp Grant, Ill.
M. L. Todd, Camp Lee, Va.
W. H. Tobey, Chicago.
W. O. Wetmore, Ft. Bliss, Tex.
W. F. Zelinski, Ft. Sheridan, Ill.

CAPTAINS

S. H. Ackerman, Ft. Mott, N. J.
F. Annis, Camp Benning, Ga.
G. E. Atwood, Galveston, Tex.
J. R. Bibighaus, Camp Lee, Va.
E. Blackshear, Ocala, Fla.
F. N. Bowman, Camp Meade, Md.
H. Brooks, Ft. Bliss, Tex.
R. B. Bretz, Jasper, Ind.
R. W. Browne, Winthrop, Mass.
W. J. Burdell, Ft. Dade, Fla.
M. M. Butler, Atlanta, Ga.
H. A. Callahan, Camp Dix, N. J.
P. G. Capps, Camp Knox, Ky.
A. M. Corley, El Paso, Tex.
J. F. Campbell, Hoboken, N. J.
O. Christian, Camp Taylor, Ky.
H. A. Clark, Dorchester, Mass.
R. E. Cloward, Prince, Utah.
E. Clinard, St. Louis.
C. F. Costenbader, Ft. Bliss, Tex.
T. B. Craeroft, Ft. Sheridan, Ill.
J. E. Cramond, Great Falls, Mont.
J. Craven, Adel, Ia.
R. R. Decker, San Antonio, Tex.
W. E. Devers, Cowles, Neb.
M. A. Farlow, Camp Jackson, S. C.
R. Favour, Jr., Bowdoinham, Me.
D. B. Faust, Camp Gordon, Ga.
L. Z. Fletcher, Ft. Sam Houston, Tex.
H. B. Forbes, Ogden, Utah.
J. F. Gamble, Ft. Ringgold, Tex.
H. B. Gantt, Washington, D. C.
C. C. Gans, Baltimore, Md.
C. V. Gautier, Lakeland, Fla.
J. J. Gibson, Camp Grant, Ill.
E. Giddings, New York.
E. H. Gist, Camp Holabird, Md.
S. H. Graham, Ft. Sam Houston, Tex.
G. Granger, Hampton, Va.
J. H. Graves, Ft. Sam Houston, Tex.
G. D. Griggs, Markelton, Pa.
F. A. Haggard, Camp Taylor, Ky.
J. G. Hall, Camp Travis, Tex.
G. L. Harker, Camp Gordon, Ga.
E. F. Harrison, Ft. Wayne, Ind.
C. C. Harvey, Council Grove, Kan.
E. D. Hatch, Brookline, Mass.
H. W. Hayes, Oteen, N. C.
J. R. Herrick, Camp Travis, Tex.
G. B. Hemeon, Camp Travis, Tex.
B. Hibbard, Ft. Sam Houston, Tex.
J. S. Hickman, Bluffton, Ind.
R. W. Horton, Eagle Pass, Tex.
H. C. Johannes, Chicago.
L. H. Kice, Laredo, Tex.
A. G. Kinberger, Camp Custer, Mich.
H. W. McCloskey, Philadelphia.
S. A. McConnell, Marfa, Tex.
N. C. Mashburn, Camp Taylor, Ky.
C. W. Metz, Camp Sherman, O.
E. M. Morris, Winthrop, Mass.
P. D. Moulton, Camp Upton, N. Y.
J. G. Newgord, Ft. Monroe, Va.
B. J. O'Connor, Louisville, Ky.
J. Oswalt, Douglas, Ariz.
E. H. Perry, Pt. Benj. Harrison, Ind.
P. E. Rossiter, Cape Vincent, N. Y.
H. P. Sawyer, Washington, D. C.
J. J. Schreiter, Sarnnas, Ill.
H. W. Taylor, Camp Devens, Mass.
R. E. Thomas, Ft. Washington, Md.
J. B. Warden, Mystic, Conn.
L. H. Winemiller, Ft. Sheridan, Ill.

FIRST LIEUTENANTS

Anthony Avata, Marfa, Tex.
J. F. Brooks, Riley, Kan.
W. S. Crawford, Ft. Ontario, N. Y.
W. P. Dingle, Ft. Crook, Neb.
W. T. Fisher, Ft. Strong, Mass.
W. J. Froitzheim, Ft. Huachuca, Ariz.
O. J. Gee, Ft. Sam Houston, Tex.
W. F. Hamilton, Ruidosa, Tex.
W. H. Houston, Camp Lee, Va.
H. J. Hutter, Tulsa, Okla.
B. W. Johnson, Philadelphia.
S. V. Kibby, Hartford, Conn.
A. C. McCall, Washington, D. C.
T. R. McCarley, Camp Funston, Kan.
J. A. Mendelson, Washington, D. C.
C. R. Mueller, Camp Lee, Va.
E. C. Pratt, Ft. Sheridan, Ill.
F. L. Pratt, Staten Island, N. Y.
L. F. Putnam, Ft. Bliss, Tex.
S. Reeves, Fawn Grove, Pa.
W. L. Thompson, Andover, N. J.

Provisions for Veterans with Mental Diseases

The Public Health Service has taken over a part of the government hospital for insane at Washington, D. C., to care for a number of the World War veterans suffering from acute mental disorders as distinguished from neuropsychiatric cases. One hundred and seventy patients have already been transferred from institutions in New York and others will be sent to the government hospital for insane from hospitals over the country as cases of insanity develop among the soldiers.

Civilian Staff for War Risk Insurance Bureau

The Bureau of War Risk Insurance is shortly to name a chief medical advisor and an entire new medical staff, chosen from members of the medical profession in private life. Ever

since the bureau was established, its medical staff in Washington and in the various districts throughout the country was constituted of officers of the Public Health Service. The proposed change is being made in order to facilitate and coordinate the work of adjusting compensation and insurance claims of World War veterans and their widows.

Treatment of Leprosy with Chaulmoogra Oil

Success in the treatment of leprosy with an ethyl ester of chaulmoogra oil is announced by the United States Public Health Service after experiments on fifty-nine patients in the Hawaiian Islands. These have all recovered sufficiently to warrant their release and after freedom for over a year none has shown the slightest symptom of recurrence. The study was conducted by officers of the Public Health Service in cooperation with Prof. L. E. Dean, head of the chemical department of the College of Hawaii, who isolated the active constituents of the drug.

Standard Microscopic Equipment

A standard microscope equipment has been selected for use in the Army Medical Department, according to information given out by Surgeon-General Ireland. The models are the Bausch and Lomb FFS8 and Spencer 44 H, including the Spencer folding microscope for portable laboratories in the field. A recent survey of Medical Corps equipment disclosed that there are many different makes and models in use in the service, and all of these are to be replaced by the new models. The reason for the selection of these types lies in the fact that oculars, objectives, condensers, mechanical stages and dark field illuminators of these models are interchangeable.

National Leprosarium

Dr. Oswald E. Denney has been selected to take charge of the new leprosarium to be established by the U. S. Public Health Service at Carville, La. This institution has been operated by the Louisiana health authorities and is shortly to be transferred to the Public Health Service. At the present time about twenty-five patients are under treatment, but extensions, sufficient to accommodate 2,000 lepers, will be made. It is estimated that there are now about 1,800 lepers in the United States, most of whom are scattered throughout the South, with a large number in the Northwest. It is the intention of the Public Health Service to place all of these in the leprosarium at Carville.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 28, 1920.

The Doctrine of Evolution

At the annual meeting of the British Association a discussion which took place in the joint session of the geologists, botanists and zoologists attracted a large audience. The discussion dealt with the mode of the process of evolution. No speaker doubted the fact of evolution, but it was apparent that unanimity has not yet been reached in a controversy that has lasted for a quarter of a century. Darwin believed that whatever might be the cause of evolution, it had come about by the summation of small modifications. Examination of every individual plant or animal revealed minute differences from other animals and plants of the same kind, and he thought that these were the chief material on which natural selection acted. There has always been a school which looked to occasional large variations, called "sports" or "mutations," as the more probable source of new species, urging that, as species were discontinuous, they had come into existence by the selection of discontinuous variations. This school was suddenly reenforced by the rediscovery of Mendel's work on hybrid peas, and his theory that organisms were compounded of unit factors, each of which was transmitted and inherited in a state of purity. An eager body of experimental workers followed the mendelian line of investigation and added triumph after triumph to their experimental dissection of organisms into unit factors, and their tracing of the fate of these factors in inheritance. Some of the more extreme partisans of the view discarded natural selection and the influence of the environment from their conception of the process of evolution. They returned to a new form of a mystical medieval theory, and held that evolution was simply a deployment of unit factors, all of which had been contained in the primordial germ of life. Mutations were inherited or transmitted in all their purity, but variations due to the environment left no trace on the permanent chain of life. Students of fossils might have been expected to support the view that evolution had come about by sudden changes, especially as the gaps in the series of fossils were great. But, on the other hand, they were unanimous as to the evidence from the rocks being in favor of slow, continuous change. Whenever a series was complete, and had been studied carefully, it showed a slow and continuous evolution. It showed, moreover, that the points in which old animals differed from young animals frequently anticipated the changes by which later species differed from earlier species. The facts strongly supported the belief that, somehow or other, the environment had an effect on living creatures, and that this effect became grafted on the constitution of the race, so that it would subsequently appear independently of the environment. They believed, therefore, that evolution was continuous, that some force like natural selection directed it, and that the environment and not the unrolling of latent possibilities was the chief factor in eliciting variation. As was to be expected in the case of an extremely active branch of experimental science, the advocates of mendelism were not all in agreement. But it was admitted by many that mendelians had laid too much stress on discontinuity, and that what they called mutations and unit factors were often so minute that only experts could identify them. Still more important was the admission that the mendelian theory of the purity of the unit factors could not be maintained. In certain cases, mendelian units were transmitted without alteration, while in a growing number of cases it appeared that blended inheritance was the rule. The general result of the discussion was to show that mendelian work, instead of being opposed to the darwinian principles of evolution, was likely to reinforce them, and that paleontology, zoology and botany bore witness to the greatness of the darwinian conceptions.

Action Against a Physician for the Negligent Use of Cocain

A patient sued a physician for damages for alleged negligence in the use of cocain as a local anaesthetic in operating on a small cyst of the hand. A 5 per cent. solution combined with epinephrin was injected. After the injection of 5 minims it was found that the requisite anesthesia had not been produced, and a further injection of 5 minims was made, when alarming symptoms followed. An illness lasting three and one-half years, from which the patient had only partially recovered, was ascribed to the effects of the cocain, and this was apparently not in dispute. The only question, indeed, for Mr. Justice Salter, who tried the case, was that of the alleged negligence. The negligence, his lordship said, was alleged in three ways—that: (1) it was negligent to use cocain for hypodermic injection; (2) too large or too strong a dose was administered, and (3) there was unskilfulness and carelessness in the administration of the second injection. It was contended that cocain as used was obsolete and dangerous. As to this, the judge understood from the evidence before him that the risk was practically confined to persons abnormally sensitive to the drug, a peculiarity of the patient not discoverable beforehand. With regard to the danger of using cocain, the relative merits of other drugs

for the same purpose, and the correct dosage, he was satisfied from the evidence, called on both sides, that the highest medical opinion was not in agreement. He had evidence of chemists and of pharmacists that cocain was still widely used, and that although the proportion prescribed was frequently less than 5 per cent. this proportion was used if the strength was not mentioned, because it was the strength prescribed in the British Pharmacopeia. In fact, cocain was included in the British Pharmacopeia for the purpose and in the proportions in which the defendant had used it. A physician could not be convicted of negligence for having administered a preparation agreeing both in strength and amount with the British Pharmacopeia, and of which, moreover, he had had satisfactory experience for many years. As to the suggestion that a small vein had been pierced in making the second injection, even if this had been so there was evidence before him that it was possible to inject cocain into a small or even into a larger vein without danger to a normal person, such as evidence showed the plaintiff apparently to be. In giving judgment for the defendant the judge expressed deep sympathy with the plaintiff.

Queensland Institute of Tropical Medicine

Important recommendations for extending the scope and usefulness of the work of the Institute of Tropical Medicine at Townsville, North Queensland, were decided on at a recent meeting of the committee, when it was decided to recommend to the federal cabinet proposals for strengthening the staff of the institute and extending and intensifying its work. These include the opening of experimental stations at Port Moresby, Papua and Rabaul, and an addition to the staff of officers to carry out investigations on the spot into any outbreaks of tropical disease without interfering in any way with the regular routine of the laboratory work and tests. While these proposals involve some additional expense, it is held that the committee will be amply justified by the more thorough manner in which it will be possible to cope with tropical diseases in Australia, and by the extension of the sphere of operations to Papua and former German territory. It is hoped that eventually all the medical officers appointed to posts in the Pacific territories will take a course at Townsville. When the institute was established, the preparatory work took some time, and then, with a depleted staff, and other difficulties the institute took up the treatment of soldiers from Rabaul suffering from malaria. So marked was the success that returned men from the other states who had been badly affected by malaria were sent to Townsville, and their treatment proved an almost dramatic success.

RIO DE JANEIRO

(From Our Regular Correspondent)

Aug. 12, 1920.

Organization of the National Department of Public Health

May 26, a decree was signed by President Pessoa creating a public health department. Besides an administrative and three technical bureaus, namely, land, sea and rural sanitation and prophylaxis, sections on statistics, sanitary engineering, leprosy and venereal disease prophylaxis, medicine, pharmacy, dentistry and midwifery, food inspection, tuberculosis prophylaxis, hospital assistance and child welfare have been created. The bill, which consists of ninety-five pages and 1,257 paragraphs, encountered great opposition not only by scientific and daily papers but also by many physicians. In a short time this law was so severely criticized that the president was obliged to revoke it. One of its greatest faults is that sanitation of the interior of the country is not provided for, although congress had made specifications for it. No sacrifice was considered too much in benefit of the population of the northern and northwestern states, where malaria and hookworm have reigned for many years. Nevertheless, more than a million dollars was destined for government officials and professionals solely in the city of Rio de Janeiro. This sum does not include the services for leprosy and venereal disease prophylaxis, tuberculosis eradication, physicians for contagious disease hospitals, students serving in the smallpox vaccination section, nurses, and the like. Before the reorganization there were sixty-eight nonprofessional officers, whereas at present there are more than 400.

Death of Arnaldo Vieira de Carvalho

The death of Prof. Arnaldo Vieira de Carvalho, one of the most prominent physicians of São Paulo, is deeply regretted throughout the country. The deceased was director of the medical school of the hospital S. Casa de Misericordia, and president of the Sociedade de Medicina e Cirurgia. His position as director of the medical school will be assumed by Dr. Ovidio Pires de Campos.

Personal

Dr. Rocha Lima, professor at the Hamburg University, has been visiting friends in Rio. At the Academy of Medicine he reviewed his research work during the war in Turkey and Poland on typhus. He read a paper on Peruvian wart before the Medicosurgical Society. At São Paulo he addressed the Medicosurgical Society on yellow fever.——Prof. Custodio Cabeça, well known surgeon of Lisbon, and Professor Morquio, well known physician for children's diseases, are sojourning in Rio.——Prof. João Marinho and Dr. Marcondes Castilho have left for Buenos Aires to represent Brazil at the congress of otorhinolaryngology in that city.

New Professors in the Medical School

Dr. Del Vecchio has been appointed professor of chemistry at the medical school, and Dr. Augusto Brandão, professor of surgery.

Public Health Department in São Paulo

Dr. Arruda Sampaio has been appointed head of the public health department in São Paulo.

New Hospitals for Rio

Dr. Domingos Mascarenhas, congressman for Rio Grande do Sul, has asked congress to approve his bill creating three new hospitals, one for noncontagious diseases, under the direction of the medical school, and two others for tuberculosis and other contagious diseases under the supervision of the public health department.

BELGIUM

(From Our Regular Correspondent)

Aug. 20, 1920.

Federation of Scientific Societies

There has recently been formed at Brussels a Fédération belge des sociétés de sciences mathématiques, physiques, naturelles, médicales et appliquées. Thirty-three societies have already joined the federation, and many others have promised to become affiliated in the near future. The group includes various scientific societies which give evidence of their activity by the publication of original work, and the movement is designed to unite and coordinate all efforts for the general advancement of the pure and applied sciences, although the component societies retain their own autonomy. The federation will endeavor to encourage initiative and to procure the requisite material and moral assistance for the furtherance of scientific work, and it will collaborate in perfecting scientific publications. It may, especially, summon congresses, organize conferences and expositions, and found or support useful scientific institutions.

Among the principal aims of the federation may be mentioned: (1) an increase of the resources of affiliated societies

sufficient to continue their publications, and (2) the collection of works published by the federated societies and exchange of publications with analogous federations in allied and neutral countries.

A general council of fifteen members administers the affairs of the federation. The officers for 1920 are Professor de la Vallée-Poussin (Louvain), president; Paul Pelseneer (secretary of the Académie royale de Belgique), vice president; J. Wauters (secretary general of the Société chimique de Belgique) treasurer, and Messrs. Zunz and Lucien, secretaries.

The Journal de Neurologie

During the war the Société de médecine mentale de Belgique had suspended publication of its bulletin. A special number has just appeared which will fill the gap from 1914 to 1920. From now on the journal will be issued regularly, six numbers each year, and it will contain original articles in addition to the transactions of the society.

Chair of Urology

The Liége medical faculty has recently opened the first urologic clinic in Belgium. Up to the present time, in fact, the teaching of urology has been only fragmentary, some of the subjects coming under the domain of surgery and others under venerology, and the establishment of the first chair of urology constitutes, therefore, an event in the history of medical education. In his opening address, Professor Hogge referred to Necker's great school and paid a tribute to his teacher, Guyon, only a few days before the latter's death.

Medical Epigraphy

Under inspiration of the work of Professor Blanchard of Paris, Professor Lams has laid before the Société de médecine of Ghent a suggestion of interest to the history of medicine. All documents having any relation to medical art deserve to be rescued from oblivion, and so he appealed to all his confrères to collaborate in this endeavor and to send to him every curious or interesting inscription connected with medicine. This initiative, if it becomes general, will contribute enormously to the collection of a vast amount of scattered data and will facilitate the arduous work of historians.

Retrogasserian Neurotomy

Dr. De Beule, who originated the surgical treatment of facial neuralgia by section of the posterior root of the gasserian ganglion, has lately reported his personal experiences to the Académie de médecine. He claims that the method has two incontestable advantages: The results are more permanent and more constant than those obtained by injections of alcohol, and there is far less danger than with gasserectomy. In fifteen patients on whom the operation was performed, no recurrence of the affliction was observed. He has, however, seen some trophic disorders of the side of the eye, and facial and oculomotor paralysis, but these sequelae proved very transitory. It seems at present that De Beule's operation is coming more and more into use; the statistics of Adson of Rochester, Minn., have confirmed its value and his instrumentation has improved the technic.

BERLIN

(From Our Regular Correspondent)

Aug. 13, 1920.

Excess of Boys Born During the War

The popular opinion that during and after a war a great many more boys are born than girls, an opinion also contained in various scientific manuals, has been tested in a few investigations. As Dr. Behla, the former director of the medical section of the Prussian office of statistics, has reported, up to 1917 there had been no extraordinary excess in births of boys. The usual proportion of the two sexes, 100 girls to about 105 boys, was also maintained in 1915. Professor Silbergleit, of the Berlin office of statistics, is of the same opinion. During the first years of the war he does not exclude a slight but meaningless rise in the usual surplus of boys, but he is not inclined to believe in the mysterious force of nature striving to fill hastily the gaps which the war has caused in the ranks of the male population. So far as the excess of boys in general is concerned, this ranged, according to Silbergleit, among the living new-born in Germany, from 5 to 6 per cent. during the first decade of the twentieth century, the same as in Austro-Hungary and other countries. England is apparently the only exception to this, for there the average excess was only 3.9 per cent. in 1906-1910. It is, however, doubtful whether different statistical methods do not play an important rôle in this computation. For comparing the statistics of the living new-born, it is highly essential from what point of view the births are regarded. In Germany, every birth must be reported within twenty-four hours, with explicit information as to whether or not the child was stillborn. In France, a delay of three days is granted, so that infants dying before registration are reported as stillborn. In England and Ireland, however, the period of grace is not less than six weeks. The "stillbirths" occurring under these circumstances are wholly disregarded, as actual stillbirths are not recorded at all. Now it must be remembered in this connection that there is an important difference in mortality of the two sexes especially during the first days and weeks, the vitality being considerably lower in male than in female new-born. Hence it may justly be assumed that, owing to this peculiar laxity in birth notification in England, because of early deaths less births of living male infants than of female infants are recorded. According to Silbergleit, the small excess of boys in England is essentially due to certain official conditions and is not founded on facts. So far as the higher mortality of male new-born is concerned, 202 boys died, as compared to 170 girls, out of every thousand, according to the German vital statistics for the first decade of the twentieth century. Hence there is on the side of the male sex an excess mortality of 32 to each 1,000 living new-born. In 1912, the proportion of deaths under 1 year of age, as compared to the births of living female infants, was 13.37 per cent. If we apply this percentage to the 961,742 living male infants born in the same year, we obtain 128,585 deaths; in reality, however, 154,207 male infants died, or 25,622 more than was to be expected. The greatest excess of mortality occurs during the first month. Calculating the excess mortality of boys in percentage of the girl mortality, according to the principal causes of death, we obtain for the male excess mortality in 1912 this series: defective vitality, 23.8 per cent.; diseases of the digestive organs, 20.8 per cent.; diseases of the respiratory organs (exclusive of pneumonia) 18 per cent.; pneumonia, 17 per cent., and infectious diseases, 0.0 per cent. Professor Silbergleit is therefore fully justified in concluding that defective vitality and diseases of the digestive organs are the main causes of the excess mortality in male infants. Better care and nursing, appropriate feeding and careful supervision can help to combat the diseases that are caused by the apparently weaker constitution of male infants. The same question was discussed by the late Professor Schauta of Vienna, in 1916. Between April 1, 1915, and April 1, 1916, for each 100 girls, 102 boys were born in his clinic, while before the war the proportion was 100 to 106; here we find a decrease in the births of boys. Bumm of Berlin found the proportion to be 100 to 116 (before the war 100 to 103). Krönig of Freiburg found no increase of boys. As can be seen, there is a predominant opinion that the lay notion regarding an increase in births of boys as the result of war is incorrect. A final judgment cannot be given until complete

statistics of the war have been studied, as observations made up to date are based on too small statistic material.

Periodic Examination of the Apparently Well

Recently, Ministerial Director Gottstein published an article in which evidence was presented that systematic physical examination of persons who feel well leads to the discovery of incipient disease and of predisposition to disease which by appropriate treatment can be eliminated before the menace to health and life becomes manifest. Gottstein referred to a lecture by E. L. Fisk on the same subject in 1914. Although Germany has no such organization as the "Life Extension Institute" of New York, we have institutions working or tending to work in the same directions, despite the fact that they are organized along entirely different lines and are based on entirely different principles. The German institutions are rather closely connected with the concept of disease which has been gained from the experiences of the last two or three decades and for which the introduction of social legislation has been prominently responsible. Disease is no longer exclusively considered as an anatomic condition but as a functional disorder with certain stages of development, a regulatory intervention with which is the principal problem of medical endeavor. For this purpose early medical recognition is necessary, and this very often must anticipate the subjective manifestations of the disease. Therefore periodic examination of all persons, even those who feel healthy, is the ideal to be reached. It has been attained in a practical form only in the army and with the majority of the school population of cities, partly also with infants and children up to school age. The age between school and military service is, however, not supervised, and during this period especially pulmonary tuberculosis is a menace. In regard to this Gottstein writes: "We know that tuberculous infection prevails to a remarkably high extent among the school youth of the proletariat in large cities, and that it is based on a well defined anatomic localization clinically characterized less by local symptoms than by inhibition of the general development and of hematopoiesis. Further, we know that only in a small percentage it leads to death by direct progression and by destruction of organs, and that the infection is consequently surprisingly benign. On the other hand, we know that from 15 up to 25 and 30 years of age the proportional number of tuberculous infections is considerably less than during school age, but in this period it has overcome the protective barrier of the glandular and lymphatic system, and settles most destructively in the lungs and often follows a rapid, unfavorable course." Hence it is clearly seen that regular examination, in view of the curability of incipient tuberculosis, is of great importance to the individual as well as to the community. The great importance of extending treatment in the first stages of the disease cannot be better demonstrated statistically than in typical infectious diseases of acute course. Gottstein cites scarlet fever and diphtheria in this connection and compares the figures of six different districts, with reference to the number of physicians in the district; namely, Oppeln, 2.36 physicians to 10,000 inhabitants; Gumbinnen, 2.48; Bromberg, 2.63; Stettin, 4.47; Königsberg, 5.03, and Breslau, 5.80. It can be assumed without question that where there are many physicians, medical care is as a rule obtained earlier in the course of a disease. The numbers of death in these six districts for every hundred patients are:

	Scarlet Fever	Diphtheria
Gumbinnen	18.9	46.5
Oppeln	23.5	25.8
Bromberg	23.9	23.8
Stettin	6.9	8.9
Königsberg	12.5	15.6
Breslau	4.1	10.8

Naturally, there are other contributory factors, but in any event, these figures prove that early medical attention guarantees a greater likelihood of recovery.

Marriages

PHILIP LOUIS COULTER, Major, M. C., U. S. Army, Fort Sheridan, Ill., to Miss Margaret Marie Rundlett, of Detroit, Minn., September 7.

PHILIP S. EASLEY, Statesville, N. C., to Miss Marguerite Schmidt, of Coblenz, Germany, at New York, September 1.

RALPH CHESSE PURNELL TRUITT to Miss Eleanor McConnell, both of Chicago, September 2.

RUPERT O. ROETT to Miss Katherine Juanita Bryant, both of Houston, Texas, recently.

ARTHUR JOSEPH BABIN to Mrs. Laura Hartnett, both of New Orleans, September 1.

ALEXANDER J. DE GRAND to Miss Elizabeth McFarland, both of Chicago, September 11.

BENJAMIN F. GUMBINER to Miss Anna Inez Bleiweiss, of Chicago, September 16.

S. H. CLEMONS to Miss Durrell, both of Chattanooga, Tenn., recently.

Deaths

Frederic Henry Gerrish, Portland, Me.; a graduate of the Medical School of Maine, Portland, in 1869, died September 9, aged 75. He was a member, and president in 1901-1902, of the Maine Medical Association. After serving as lecturer and professor of therapeutics, materia medica and physiology at the University of Michigan, he returned to his alma mater as professor of materia medica and therapeutics, 1875-1882; of anatomy, 1882-1904; of surgery, 1904-1911, and since then emeritus professor of surgery. He was president of the Maine State Board of Health from 1885 to 1889, the American Academy of Medicine, 1887-1888, and American Therapeutic Society, 1908-1909; consulting surgeon and director of the Maine General Hospital; author of several medical works and editor of the Text-Book of Anatomy by American Authors.

John Harlan Stuart, Minneapolis; Bellevue Hospital Medical College, 1867; aged 84; formerly consulting physician to the City, St. Mary's and Asbury hospitals, Minneapolis; sometime professor of physical diagnosis and clinical medicine in Hamline University, Minneapolis; president of the Kansas State Medical Society in 1882; for two terms president of the Hennepin County Medical Association; died, August 31.

Benjamin Franklin Churchill, New York; University of the City of New York, 1887; aged 66; visiting surgeon for the New York Dispensary and Hospital; gynecologist to the Northeastern Dispensary; assistant surgeon at the Manhattan Eye, Ear, Nose and Throat Hospital; died, August 20.

John Joseph Molloy, Covington, Ky.; Bellevue Hospital Medical College, 1886; aged 60; a member of the Kentucky State Medical Association; for many years president of the medical staff of St. Elizabeth's Hospital, Covington; died, September 7, from nephritis.

James Harvey Lowright, Center Valley, Pa.; Jefferson Medical College, Philadelphia, 1881; aged 61; a member of the Medical Society of the State of Pennsylvania; died at the Allentown (Pa.) Hospital, August 28, from cerebral hemorrhage.

Thomas Hull Andrews, Cuthbert, Ga.; University of Pennsylvania, Philadelphia, 1875; aged 68; a member of the Medical Association of Georgia, and president of the Randolph County Medical Society, in 1919; died, September 6.

Nicholas B. Drewry, Griffin, Ga.; Atlanta (Ga.) Medical College, 1855; aged 86; formerly consulting physician at Griffin (Ga.) Hospital; died at Davis-Fischer Sanatorium, Atlanta, July 1, following a prostatectomy.

James Lewis Ellis, Dothan, Ala.; Memphis (Tenn.) Hospital Medical College, 1886; aged 59; a member of the Medical Association of the State of Alabama; died, August 29, following an operation for appendicitis.

Urbane V. Williams, Frankfort, Ky.; Jefferson Medical College, 1858; aged 86; secretary of Franklin County Medical Society for ten years; died, September 1, from senile debility.

● Indicates "Fellow" of the American Medical Association.

Alvin Rufus Scott ● Fort Collins, Colo.; Jenner Medical College, Chicago, 1906; University of Illinois, Chicago, 1907; aged 43; died in St. Luke's Hospital, Denver, August 31, from septic embolism of the liver.

Thomas J. Walker, Dyersburg, Tenn.; University of Louisville, Ky., 1867; aged 79; a member of the Tennessee State Medical Association; died at the Baptist Memorial Hospital, Memphis, August 30.

Stephen Van Wickle Stout, Jersey City, N. J.; Columbia University, College of Physicians and Surgeons in the City of New York, 1868; aged 74; died at the Memorial Hospital, September 7.

John Charles Martin, Findlay, Ohio; Jefferson Medical College, 1881; aged 64; a member of the Ohio State Medical Association; a veteran of the Spanish-American War; died, September 1.

Galen L. Cline, Perintown, Ohio; Medical College of Ohio, Cincinnati, 1882; aged 63; formerly a member of the Ohio legislature; at one time assistant surgeon, U. S. Army; died, August 29.

Richard Alexander Urquhart, Los Gatos, Calif.; University of Virginia, Charlottesville, 1874; aged 69; died in Lane Hospital, San Francisco, September 4, from streptococcus septicemia.

George Huhner, New Orleans; Tulane University, New Orleans, 1881; aged 71; died at the Charity Hospital, June 10, from injuries received when struck by an automobile, June 7.

Albert E. Koons, New York; Columbia University, College of Physicians and Surgeons in the City of New York, 1896; aged 46; also a dentist; died in St. Luke's Hospital, September 8.

Harry Richard Nordley ● Minneapolis; University of Minnesota, Minneapolis, 1912; aged 32; Lieutenant, M. C., U. S. Army; died at West Arm, Lake Minnetonka, August 24.

William Holyoke Niles ● Marshall, Mich.; University of Vermont, Burlington, 1915; aged 35; Lieutenant, M. C., U. S. Army, and discharged May 26, 1919; died recently.

George Harrington McGuire, New York; University of the City of New York, 1883; aged 58; died, September 12, from injuries received in an automobile accident.

Samuel B. Lewis, Madison, Ind.; Cincinnati College of Medicine and Surgery, 1862; aged 80; a veteran of the Civil War; died, August 19, from heart disease.

Edward Frank O'Day, Dover, Del.; University of Maryland, Baltimore, 1891; aged 54; at one time a member of the Delaware legislature; died, September 7.

David H. Davis, Nanticoke, Pa.; University of Pennsylvania, Philadelphia, 1880; aged 67; died at the home of his sister in Tunkhannock, August 26.

Ralph Nevin Gordon, Vancouver, Wash.; University of Michigan, Ann Arbor, 1897; aged 46; died, July 6, from acute dilatation of the heart.

Rebecca Hanna, Red Oak, Iowa; State University of Iowa, Iowa City, 1874; aged 78; died at St. Joseph's Hospital, Omaha, August 28.

Solomon F. Wehr, Staunton, Ill.; Eclectic Medical College of Philadelphia, 1862; aged 86; a veteran of the Civil War; died, September 1.

Aaron H. Hastings, Muncie, Ind.; Hahnemann Medical College and Hospital, Chicago, 1887; aged 78; died, September 2.

Frederick K. Everett, Chicago; Chicago Homeopathic Medical College, 1888; aged 62; died, August 11, from paralysis.

Nathan Tucker, Mt. Gilead, Ohio; Bellevue Hospital Medical College, 1866; aged 82; died, August 29, from nephritis.

Thomas Lee Settle, Paris, Va.; Kentucky School of Medicine, Louisville, 1857; aged 84; died, August 26.

Henry Ford Gould, Denver, Tenn.; Vanderbilt University, Nashville, Tenn., 1879; aged 64; died recently.

John M. Mussey, Oakland, Calif.; Castleton (Vt.) Medical College, 1854; aged 87; died, September 2.

Horace G. Colley, Wilkes-Barre, Pa.; Jefferson Medical College, 1874; aged 68; died, September 3.

Joseph Henry Hayes, Lock Haven, Pa.; Jefferson Medical College, 1862; aged 79; died, August 25.

William Follett, Machias, N. Y.; University of Buffalo, N. Y., 1892; aged 49; died, August 29.

John P. Burchfield, Pittsburgh; Jefferson Medical College, Philadelphia, 1865; died, September 5.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME MISBRANDED VENEREAL NOSTRUMS

Injection Cadet.—E. Fougera & Co., New York, shipped in July, 1918, a quantity of "Injection Cadet," said to be made by G. Durel of Paris, France. The federal chemists analyzed this product and reported that it consisted of a dilute watery solution of copper sulphate and unidentified plant material. The federal authorities charged that the therapeutic claims made for the product were false and fraudulent. In October, 1919, no claimant having appeared for the property, the court, after entering judgment of condemnation and forfeiture, ordered it destroyed by the United States marshal.—[*Notice of Judgment No. 7263; issued Aug. 16, 1920.*]

Knoxit.—The federal authorities made a number of seizures of these products. The nostrums were consigned by the Beggs Mfg. Co., Chicago, and were shipped at various times between June, 1918, and April, 1919, inclusive. Analysis of "Knoxit Injection" made in the Bureau of Chemistry showed that it consisted essentially of a slightly perfumed solution of zinc acetate and alkaloids of hydrastis in glycerin and water. "Knoxit Liquid" was also found to be a solution of zinc acetate with alkaloids of hydrastis in glycerin and water perfumed with oil of rose. "Knoxit Globules" were reported to consist essentially of a mixture of volatile and fixed oils and oleoresins, including copaiba balsam, cinnamon and cassia. The three products were declared misbranded because they were falsely and fraudulently represented as cures for gonorrhea, blennorrhea, catarrhal affections of the genito-urinary organs and for various other conditions. When the various cases came before the court no claimant appeared for the property and the court ordered in each instance that judgment of condemnation and forfeiture should be entered and the stuff destroyed by the United States marshal.—[*Notices of Judgment Nos. 7260-61-62-77-78-81-84-85-86-87, issued Aug. 16, 1920; Nos. 7310-11-12-16-17-25-49, issued Sept. 3, 1920, and Nos. 7353-65-78-88-89-92, issued Aug. 31, 1920.*]

Grimault and Co.'s Injection.—E. Fougera & Co., New York, shipped in November, 1918, four dozen bottles of this product which federal authorities declared misbranded. The Bureau of Chemistry reported that analysis showed the stuff to consist of a weak watery solution of copper sulphate and plant extractives, probably matico. The labels bore the claim that "The Matico Plant has been found to have remarkable preventive and astringent properties in the treatment of chronic and acute discharges from the urethra." This claim was declared false and fraudulent. In June, 1919, the court entered judgment of condemnation and forfeiture and ordered the United States marshal to destroy the product.—[*Notice of Judgment No. 7265; issued Aug. 16, 1920.*]

Halz Injection.—In October, 1918, and January, 1919, a quantity of this product had been shipped from Missouri into Oklahoma, having been consigned by the Ed. Price Chemical Co., Kansas City, Mo. The federal chemists reported that "Halz Injection" consisted essentially of zinc sulphate, boric acid, glycerin, traces of alum and formaldehyde and water. Some tablets that seemed to go with the product were reported

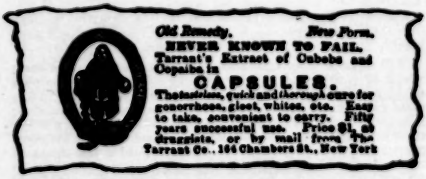
to consist essentially of calcium and magnesium carbonates, copaiba, a laxative plant drug, plant extractives, a small amount of an unidentified alkaloid, sugar and starch. The stuff was sold as a cure for gonorrhea, gleet, leucorrhea, etc. The therapeutic claims made for the product were declared false and fraudulent. In July, 1919, the Alexander Drug Co. of Oklahoma City, Okla., having filed an answer that the product was the property of the Ed. Price Chemical Co., manufacturer of the product, judgment of condemnation and forfeiture was entered and it was ordered by the court that the product should be destroyed and that judgment should be entered against the Ed. Price Chemical Co. for the costs of the proceedings.—[*Notice of Judgment No. 7344; issued Sept. 3, 1920.*]

Noxit.—The Frederick F. Ingram Co., Detroit, shipped to California in August, 1918, a quantity of a product labeled "Noxit an Injection." The federal chemists reported that analysis showed the stuff to consist essentially of opium, berberine, a zinc salt, glycerin, alcohol and water. The stuff was sold "for the treatment of gonorrhea, clap and gleet" and the therapeutic claims made for it were declared false and fraudulent. In June, 1919, the court entered judgment of condemnation and forfeiture and ordered the product destroyed.—[*Notice of Judgment No. 7306; issued Sept. 3, 1920.*]

Crossmaan Mixture.—The Wright's Indian Vegetable Pill Co., New York City, shipped in March, 1918, a quantity of "Crossman Mixture." Analysis by the federal chemists showed this stuff to be essentially an alcoholic solution of volatile oils, including balsam of copaiba and cubebs. The stuff was declared misbranded because of the false and fraudulent claims regarding its alleged curative effects in gonorrhea, gleet, etc. In June, 1919, the court entered judgment of condemnation and forfeiture and ordered that the product be destroyed.—[*Notice of Judgment No. 7297; issued Aug. 16, 1920.*]

Santal-Pearls.—The S. Pfeiffer Mfg. Co., St. Louis, Mo., consigned a quantity of "Santal-Pearls" that were shipped in June, 1918, to Pennsylvania. When analyzed by the federal chemists the stuff was found to consist essentially of a cinnamon-flavored mixture of santal oil and copaiba. The product was sold as an alleged remedy for gonorrhea and the curative effects claimed were declared false and fraudulent. In July, 1919, the court entered judgment of condemnation and forfeiture and ordered the product destroyed.—[*Notice of Judgment No. 7370; issued August 31, 1920.*]

Cu-Co-Ba Tarrant.—The Tarrant Co., New York City, shipped in March, 1919, a quantity of "Cu-Co-Ba Tarrant." This, apparently, is a trade name for "Tarrant's Compound


Old Remedy. New Form.
NEVER KNOWN TO FAIL.
Tarrant's Extract of Cubebs and Copaiba in
CAPSULES.
The active, quick and thorough cure for gonorrhoea, gleet, whites, etc. Easy to take, convenient to carry. Fifty years successful use. Price $1, at druggists, or by mail from The Tarrant Co., 104 Chambers St., New York

Extract of Cubebs and Copaiba when put up in capsule form. The article bore such claims as:

"Of special value in gleet, gonorrhea and leucorrhea when uncomplicated with diseases of uterus or appendages."

"In inflammations of vagina, bladder and kidneys, it has been used with success; also in irritation of prostate . . . leucorrhea or whites."

"In the contagious disorder known as gonorrhea or clap, Cu-co-ba gives positive results in the great majority of cases."

The federal chemists reported that analysis showed the stuff to consist of a mixture of extracts of cubebs and copaiba with magnesium oxid. The therapeutic claims made for the products were declared false and fraudulent. In January, 1920, the court entered judgment of condemnation and forfeiture and ordered the product destroyed.—[*Notice of Judgment No. 7288; issued Aug. 16, 1920.*]

Hygienic and Preservative Brou's Injection.—E. Fougera & Co., New York, shipped in November, 1918, a quantity of this product which was said to be "for the Cure of all recent and chronic Discharges of the Urinary Organs, Gonorrhea, Leucorrhea and Gleet." The chemists of the bureau reported that analysis showed the article to consist essentially

of acetates and sulphates of zinc and lead, morphin, water and a very small amount of alcohol. The therapeutic claims were declared false and fraudulent. In December, 1919, E. Fougera & Co. having consented to a decree, judgment of condemnation and forfeiture was entered and the court ordered that the product be released on payment of the costs of the proceedings and the execution of a $250 bond on condition in part that the product should be relabeled under the supervision of a representative of the Department of Agriculture.—[*Notice of Judgment No. 7264; issued Aug. 16, 1920.*]

Correspondence

ALL-AMERICA CONFERENCE ON VENEREAL DISEASES

To the Editor:—On the basis of our present knowledge, syphilis, from being one of the most prevalent of human afflictions, can be made as rare as smallpox. Excepting perhaps diphtheria, is there another widely prevalent infectious disease for whose control we now have available so many practical discoveries as we have in the case of syphilis? Ignorance and inertia on the part of the people are the chief obstacles, and these are now being overcome with encouraging progress, thanks largely to the World War.

The extraordinary demands for man power made on all the warring nations during the last few years served to focus attention on the fearful devastation wrought by the venereal diseases. As a consequence, legislators and administrators, official and unofficial organizations, took active steps to control the venereal diseases, especially as they affected the military forces. In the United States these steps included the passage of an act appropriating several million dollars out of the federal treasury for combating venereal diseases in the various states. Largely as a result of the educational activities carried on under this appropriation, nation-wide interest has been aroused in the campaign against venereal diseases, and states and municipalities are actively engaged in efforts to control these infections.

At this point the question arises whether the scientific knowledge which we have concerning the venereal diseases is everywhere being properly utilized. It would seem highly desirable to examine carefully the work thus far carried on so that profitable activities can be more fully developed and others abandoned or curtailed. Much can certainly be expected from an account of the experiences of active workers in this field. Moved by these considerations, the official leaders of the antivenereal campaign in the United States have organized a conference to be held in Washington, Dec. 6 to 11, 1920, where recognized authorities in their respective

fields will be brought together and where a comparison and evaluation of the methods now being employed in various parts of the world for the control of venereal diseases can be undertaken. The All-America Conference on Venereal Diseases, as the conference has been named, is the first of a series of regional conferences suggested by the International Health Conference held last year at Cannes under the auspices of the League of Red Cross Societies.

In the program as thus far arranged, provision is made for discussions under the heads of: (1) present status and recent progress in medical investigations relating to venereal diseases; (2) education as a means of controlling venereal diseases; (3) law enforcement and protective social measures with individuals, and (4) social influence in the control of venereal diseases. Specifically, the conference will endeavor to adopt recommendations relating to a practicable three-year program for each of the North and South American countries participating, and to suggest plans for putting such program into effect. Copies of the program and detailed information regarding membership may be obtained by addressing the executive secretary, All-America Conference on Venereal Diseases, 411 Eighteenth Street, Washington, D. C.

CHARLES BOLDUAN, Washington, D. C.
Acting Executive Secretary.

"CREDULITY AND CURES"

To the Editor:—In a communication to THE JOURNAL (Aug. 21, 1920, p. 558), Dr. Theodore Diller made a statement which is not borne out by the recent developments in psychanalysis. Concerning psychanalytic therapeutics he wrote: "Only in orthodox medicine are failures recorded, even when conditions and technic are perfect," and later adds that he is well acquainted with the literature on medical psychanalysis.

One contribution to psychanalysis, however, seems to have escaped either Dr. Diller's attention or memory, namely, a paper which I published in the *Psychoanalytic Review* (April, 1917), under the title of "Some Statistical Results of the Psychoanalytic Treatment of the Psychoneuroses." This paper was based on an unselected series of ninety-three cases which were personally psychanalyzed, and so far as known, was the first complete statistical study of psychanalytic therapeutics. The material was classified according to the diagnosis of the neurosis treated and, contrary to Dr. Diller's rather dogmatic statement, failures *were* recorded; but these failures occurred in cases of neuroses of long duration or when the unconscious resistance toward recovery was so strong that it could not be overcome by the psychanalytic technic used.

For instance, under the heading of "A Discussion of the Statistical Results," it was stated: "In looking over the table of results, it will be noted that the largest percentage of recoveries (nine out of eleven cases) occurred in the homosexual group, while in the stammering, which is really a severe form of an anxiety neurosis, no complete recovery was recorded." Each group of cases was discussed in a similar manner, the duration of the treatment stated, and the reason given either for recovery or nonrecovery.

If Dr. Diller will read my paper carefully, he will easily see that I have entered into a discussion of the psychanalytic methods the same as is done in other departments of clinical medicine. Most of the adverse criticisms of psychanalysis have emanated either from those who have had no extensive experience with the method or were unacquainted with its rapidly growing literature. Psychanalysis is based on the fundamental principle that its practice and technic must be directed toward that unconscious thinking which forms the basis of every neurosis.

ISADOR H. CORIAT, M.D., Boston.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

CALCIDIN TABLETS (ABBOTT)—SCHOOLS FOR MENTALLY DEFICIENT CHILDREN

To the Editor:—1. What is the composition of calcidin tablets (Abbott) and what is their value? 2. Is there any school for mentally deficient children in Kansas City, Denver or any other town in the Middle West or Southwest? If so, I would like the name and address of the person in charge. Please omit my name in replying.

J. S.

ANSWER.—1. Calcidin is claimed to be a mixture of iodin, lime and starch. In contact with water, the iodin and lime react to form calcium iodid and calcium iodate. By the acid of the gastric juice, the calcium iodid and calcium iodate are decomposed with liberation of free iodin. The administration of calcidin tablets amounts to giving free (elementary) iodin. In the past the advertising for calcidin has contained the unwarranted claim more of less directly that it was the most effective and only nonnjurious preparation of iodin for internal use, and that it possesses all of the valuable properties of the iodin with all of the objectionable effects left out. So far as we know, the effects produced by the administration of free iodin do not differ from those produced by the administration of iodids and, therefore, calcidin has no advantage over the iodids, such as sodium iodid.

2. Missouri Colony for Feeble-Minded and Epileptics, Marshall, Mo.; Dr. Robert P. C. Wilson, superintendent; state.
Emmaus Asylum for Epileptics and Feeble-Minded, Marthasville, Mo.; Rev. C. F. Sturm, superintendent; private.
Emmaus Asylum for Epileptics and Feeble-Minded, St. Charles, Mo.; Rev. J. W. Frankenfeld, superintendent; private.
State Home and Training School for Mental Defectives, Ridge, Colo.; Alfred P. Busey, medical director; state.
Beverly Farm, Godfrey, Ill.; Dr. W. H. Smith, superintendent; private.
Powell School for Backward and Mentally Deficient Children, Red Oak, Iowa; Dr. Velura E. Powell, physician in charge; private.
Stewart Home, Farmdale, Ky.; Dr. John P. Stewart, physician in charge; private.
Trowbridge Training School, 2891 Troost Avenue, Kansas City, Mo.; Dr. E. H. Trowbridge, superintendent; private.
Texas School for Defectives and Sanitarium for Mental and Nervous Diseases, 1112 East Ninth Street, Austin, Texas; Dr. T. O. Maxwell, superintendent; private.
Wyoming State School for Defectives, Lander, Wyo.; Dr. Charles E. Lane, superintendent; state.

DETECTION OF LEAD IN WATER

To the Editor:—I am in charge of a lead mine hospital in Mexico and we have many cases of lead poisoning. Please give me instructions how to make a simple test to detect lead in drinking water, for we are using water from different springs and we do not know which one contains the lead.

Kindly give me a simple and easy method for this test and tell me, if possible, how to remove lead from water. In answering please do not use my name.

D. J.

ANSWER.—The following method for the detection of lead in water is described by E. G. Jones (Chemistry for Public Health Students, Methuen & Co., London, 1920, p. 159):

"Fill three Nessler cylinders with the water; to two of them add 2 or 3 drops of a fresh solution of ammonium sulphid (this must be colorless) and compare with the water in the third cylinder. Lead and copper produce brown colorations; iron gives a greenish-brown coloration; zinc produces a white turbidity. If there is a coloration, keep one cylinder for comparison and treat the other as follows: Add a few drops of dilute hydrochloric acid; if the color disappears, iron is present. If the color does not go, add potassium cyanid and sufficient ammonium hydrate to render alkaline (the latter will not be necessary unless a great deal of acid has been added); if the color now disappears, copper is present. If the color still remains, the water most probably contains lead." As a confirmatory test for lead: "To 100 c.c. of water in a Nessler cylinder add a few drops each of acetic acid and of potassium chromate solution. Allow to stand for a few minutes and examine in a good light against a dark background; lead is indicated by a yellow turbidity, which may take some time to appear if the quantity is very small. Compare with distilled water, similarly treated."

We know of no practical method to remove lead from water to be used for drinking purposes, short of resorting to distillation.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 5-6. Sec., Dr. Ancil Martin, Phoenix.

ARKANSAS: Little Rock, Nov. 9-10. Sec. Reg. Bd., Dr. F. J. Stout, Brinkley. Sec. Electic Bd., Dr. C. E. Laws, Ft. Smith.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. C. B. Pinkham, 529 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 5. Sec., Dr. David A. Strickler, Denver.

CONNECTICUT: Hartford, Nov. 9-10. Sec. Reg. Bd., Dr. Robert L. Rowley, Hartford.

CONNECTICUT: New Haven, Nov. 9. Sec. Homeo. Bd., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Bd., Dr. James E. Hair, Bridgeport.

DISTRICT OF COLUMBIA: Washington, Oct. 12-15. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

FLORIDA: Jacksonville, Nov. 4. Sec., Homeo. Board, Dr. Geo. A. Davis, Sec., East Port.

GEORGIA: Atlanta, Oct. 12-14. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 5. Commissioner, Hon. Robert O. Jones, Boise.

KANSAS: Topeka, Oct. 12-13. Sec., Dr. H. A. Dyken, Lebanon.

LOUISIANA: New Orleans, Nov. 2. Sec., Homeo. Board, Dr. F. H. Hardenstein, 702 Maccheca Bldg., New Orleans.

LOUISIANA: New Orleans, Nov. 2-4. Sec., Dr. E. W. Mahler, 1551 Canal St., New Orleans.

MAINE: Portland, Nov. 9-10. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.

MICHIGAN: Lansing, Oct. 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 5-7. Sec., Dr. Thomas S. McDavitt, St. Paul.

MISSOURI: Kansas City, Oct. 6-8. Sec., Dr. Geo. H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 5. Sec., Dr. S. A. Cooney, Helena.

NEBRASKA: Lincoln, Nov. 11-12. Sec., Mr. H. H. Antles, Lincoln.

NEVADA: Carson City, Nov. 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 19-20. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 4-7. Assistant Prof. Examinations, Mr. Herbert J. Hamilton, Albany.

OKLAHOMA: Oklahoma City, Oct. 13-14. Sec., Dr. James M. Byrum, Shawnee.

PORTO RICO: San Juan, Oct. 5. Sec., Dr. M. Quevedo Baez, San Juan.

RHODE ISLAND: Providence, Oct. 7-8. Sec., Dr. Byron W. Richards, Providence.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Booser, 1806 Hampton St., Columbia.

WEST VIRGINIA: Charleston, Oct. 12. Sec., Dr. S. L. Jepson, Charleston.

WYOMING: Sheridan, Oct. 4-6. Sec., Dr. J. D. Shingle, Cheyenne.

ADDITIONAL HOSPITALS APPROVED FOR INTERN TRAINING

Since the publication of the list of hospitals furnishing acceptable internships in the Educational Number of THE JOURNAL, Aug. 7, 1920, the following institutions have been added to the list:

South Shore Hospital, 8001-17 Luella Ave., Chicago, Ill.
St. Bernard's Hospital, 6337 Harvard Ave., Chicago, Ill.
West Side Hospital, 1850 W. Harrison St., Chicago, Ill.
Butterworth Hospital, Michigan and Bostwick Ave., N. E., Grand Rapids, Mich.
St. Mary's Hospital, Cor. Cherry St. and Lafayette Ave., Grand Rapids, Mich.
St. Mary's Hospital, Minneapolis, Minn.
Stetson Hospital, 1745 N. 4th St., Philadelphia, Pa.
Holy Cross Hospital, Salt Lake City, Utah.
St. Luke's Hospital, Summit Blvd. and A St., Spokane, Wash.

Friends' Hospital, Philadelphia, has been admitted to Section II of the List which includes "State Hospitals and Hospitals for the Insane."

Children's Hospital Society, Los Angeles, Calif., is approved as a children's hospital and classified under "Special Hospitals," Section III of the List.

Connecticut July Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, July 13-14, 1920. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 50 candidates examined, 41 passed and 9 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University (1920) 77, 81.1, 82.3, 82.7, 84, 84.2, 84.9, 85.7, 85.7, 87.6.		
Loyola University	(1920)	76.1
University of Maryland	(1917)	77
Johns Hopkins University	(1920) 83.4, 87.2,	92.5
Harvard University	(1919) 82.4 (1920) 83.5, 86.1,	89
Tufts College Medical School	(1918) 78.4, (1919)	75
Dartmouth Medical School	(1910)	81.3
University of Buffalo	(1914)	84.2
Albany Medical College	(1903)	80.4
Fordham University	(1917) 79.3, (1920) 84.7,	85.5
Columbia University (1907) 80.2, (1911) 81, 85.1, (1919) 80.4, 83.2, (1920) 86.2.		
New York University Medical College	(1896)	78.1
Woman's Medical College of Pennsylvania	(1915)	75.2
Jefferson Medical College	(1917) 82, (1920) 76.9,	89.9
University of Pennsylvania	(1917) 77.9, (1920)	76.9
University of Vermont	(1920)	82.1
FAILED		
Bennett Medical College	(1914)	67
Bowdoin Medical School	(1920)	73.7
University of Maryland	(1920)	74.4
Harvard University	(1894)	58
Jefferson Medical College	(1919)	74.4
Baylor University	(1920)	69.4
Medical College of Virginia	(1917) 69.5, (1919)	68
Montreal School of Medicine and Surgery	(1918)	58.5

Book Notices

LE CHUR ET L'AORTE. Études de Radiologie Clinique. By H. Vaquez, Professeur à la Faculté de Paris, and E. Bordet, Ancien chef de laboratoire adjoint à la Faculté de Médecine de Paris. Third edition. Paper. Price, 20 francs. Pp. 259, with 188 illustrations. Paris: J. B. Baillière et Fils, 1920.

The first edition of this work was published in 1913, the second in 1918. That a new edition is called for so soon is evidence of the popularity of the book. This popularity is founded on real merit. The writers stick to their subject, which is clinical radiology. They do not wander off into irrelevant discussions of the construction of roentgen-ray machines or technical questions connected with the working of the apparatus. Nor is space unnecessarily taken up by tiresome consideration of theories that have no practical bearing on the subject. Bibliographic references are few. In addition, the style is clear so that the book makes easy and interesting reading. As to clinical features, all essential details are minutely presented. There is abundant evidence that the work is based on a rich clinical experience, supplemented by extensive reading. It is a pleasure to note the writers' familiarity with American literature bearing on the topic. The book is well printed, on good paper, and the illustrations are many and helpful.

DIAGNOSTIC METHODS: CHEMICAL, BACTERIOLOGICAL AND MICROSCOPICAL. A Text-Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago. Sixth edition. Cloth. Price, $9. Pp. 844, with 207 illustrations. Philadelphia: P. Blakiston's Sons & Co., 1920.

During the four years that have elapsed since the last edition of this book appeared—1916—research work has suffered somewhat; but many new methods have nevertheless been brought forward. The present edition is therefore considerably larger; a great deal of space is devoted to the various tests devised by Folin for the various constituents of the urine and blood, and to new methods of blood chemistry, particularly the work of Van Slyke, Rowntree and Marriott. Throughout the text the author has made frequent references to new literature on various subjects. There are many references to articles published during 1917 and 1918, and a few even to the latter part of 1919. On the whole, the book represents a complete and inclusive work on laboratory diagnosis. It is valuable not only as a textbook but also as a reference work for all physicians.

THE OXFORD MEDICINE. By Various Authors. Edited by Henry A. Christian, A.M., M.D., Hersey Professor of the Theory and Practice of Physic, Harvard University, and Sir James Mackenzie, M.D., F.R.C.P., LL.D., Consulting Physician to the London Hospital. In Five Volumes. Volume 1: The Fundamental Sciences and General Topics. Cloth. Price, $62.50 for set. New York: Oxford University Press, 1920.

From time to time the advance numbers of this publication have been reviewed in this department of THE JOURNAL. They have now been grouped under a single loose-leaf cover as the first volume of this "System." The mechanical device is easily handled. The authoritative character of the articles and their excellent presentation make the volume a worthwhile acquisition to any medical library.

Medicolegal

Damages of $1,000 for Pterygium Attributed to Cinder

(Louisville & N. R. Co. v. Roberts (Ky.), 218 S. W. R. 713)

The Court of Appeals of Kentucky says that plaintiff Roberts alleged that, while she was a passenger on one of the defendant railroad company's trains, a hot cinder entered her right eye, owing to a brakeman's coming into the car and negligently leaving the front door open just as the train entered a tunnel. The plaintiff testified that in about a week she went to a physician, who removed the cinder. After that a growth appeared in her eye, and she consulted a specialist, who prescribed for her. The physician first referred to testified that he removed something from the plaintiff's eye about the size of a pin point, but could not say whether it was a cinder. Another physician testified that there was a growth in the plaintiff's eye, which he called a pterygium, but that the growth could be removed by an operation. A third physician testified that he discovered a little growth in the plaintiff's eye, and that this growth could have been caused by a cinder. A specialist deposed that a cinder, if left in the eye, could have caused the growth; but another specialist testified that a cinder could not have caused the growth. The trial resulted in a judgment for $1,000 damages in favor of the plaintiff. In affirming that judgment, the court of appeals says that it may be conceded that ordinarily the fact that a window or the door of a car is left open is not evidence of negligance, since passengers are in the habit of raising and lowering windows and going in and out of doors; but that rule could not be applied here, because it was the rule of the company to close the doors of the cars when going through a tunnel, and the brakeman was charged with notice of the location of the tunnel. So, if he left the door open as stated, and that caused the cinder to enter the plaintiff's eye, he was guilty of negligence for which the company was liable.

Liability of Seller of Pads Causing Injury

(Harmon v. Plapao Laboratories (Mo.), 218 S. W. R. 701)

The St. Louis (Mo.) Court of Appeals says that the plaintiff alleged that she purchased three pads manufactured by the defendant, which were advertised and known as "Stuart's Adhesif Plapao Pads," for rupture. Her evidence tended to prove that the defendant sold her the pads, representing that they were harmless and would effect a cure. She used the pads as directed, but, after using them for forty days they became so painful that she was compelled to call a physician. He testified that on examination of the plaintiff he found an inflammation of the tissue around the navel; that the tissues were sloughed and had become black, what is ordinarily called gangrene; that there was a decided peritonitis; and that there was fever and distention over the bowels. There was further evidence on behalf of the plaintiff tending to show that the pads sold to her contained, among other ingredients, tannic acid and lanolin; that tannic acid when used for any length of time under pressure will become an irritant, and when used in connection with lanolin would penetrate into the abdomen, while if glycerin was used in connection with tannic acid it would prevent the harmful effects of the acid. The defendant's theory of the case was to the effect that the ingredients contained in these pads were harmless; that the pads as prepared by it contained 5 per cent. of tannic acid, which, when used in that proportion with glycerin, was not only harmless, but beneficial in cases of rupture. Still there was evidence introduced by the plaintiff from which it could be inferred that in the particular pads sold to her there was an excess of tannic acid, without any glycerin, and that under those circumstances tannic acid was injurious and could cause the injuries which the plaintiff received. There was also evidence on behalf of the plaintiff that before applying this pad she had been troubled to some extent with hernia, but that after applying the pad as directed by the defendant it caused her great pain, and she became in a much worse condition thereafter. From this evidence it could be inferred that the use of the pads caused the injury. The trial resulted in a judgment for $3,000 damages in favor of the plaintiff; but that judgment is reversed, and the cause remanded for a new trial, on account of errors in the instructions given to the jury.

There was no evidence that the defendant had actual knowledge that the pad contained injurious ingredients, if such was the fact; but, in the event that the jury believed that the pad did contain injurious ingredients, the court thinks there was evidence from which the jury might further infer that the defendant should have known of such fact, had it exercised ordinary care. The court thinks that, under the evidence, the case was for the jury, and that if the defendant sold to the plaintiff the pads, representing them to be beneficial and harmless, and that the plaintiff used the pads as directed by the defendant, and that the pads contained deleterious, irritant and corrosive ingredients, which caused the plaintiff's injury, and that the defendant knew or should have known through the exercise of ordinary care, the character of the pads, then the defendant would be liable.

Of its own motion, the trial court gave an instruction to the jury which predicated liability on the relation of physician and patient, and told the jury that it could hold the defendant responsible for the failure to exercise the care and skill of the average physician. That theory of recovery should not have been thrown into the case, as the pleadings did not justify it, and the plaintiff was not suing on any such theory.

Nor was it proper to instruct the jury that, if the defendant, from its own experience with the compound, believed, or had reason to believe, that it was not possessed of any such harmful quality, and used it with the belief that it was harmless, there could be no recovery in this action. That was error, as the question for determination was whether the defendant had exercised ordinary care in selling the pad.

Limit to Power to Remove City Health Commissioner

(State ex rel. Churchman et al. v. Hall et al. (W. Va.), 102 S. E. R. 604)

The Supreme Court of Appeals of West Virginia, in denying the relators, members of the state public health council, a writ of mandamus to compel the retirement from office of a city health commissioner and the mayor of the city to nominate some other person for health commissioner, holds that when a provision of a general statute expressly empowers the state public health council to remove from office a city health commissioner who refuses or neglects to observe and enforce the laws and regulations prescribed by the public health council to control and prevent the spread of an epidemic declared to be dangerous to the public health of such city, the exercise of such power is limited in its scope to the situation therein named, and does not, in the absence of express terms, confer authority to remove for other causes, when, as in Charleston, the charter authorizes the mayor of the city to appoint and remove the city health commissioner therefor. Furthermore, mandamus is not an appropriate process to enforce performance of a public duty, when the right to such relief is of doubtful or uncertain character.

Society Proceedings

COMING MEETINGS

Am. Acad. of Ophthal. and Otolaryng., Kansas City, Mo., Oct. 14-16.
American Association of Railway Surgeons, Chicago, Oct. 6-8.
American Child Hygiene Association, St. Louis, Mo., Oct. 11-13.
American Hospital Association, Montreal, Quebec, Oct. 4-8.
Delaware State Medical Society, Wilmington, Oct. 11-12.
Indiana State Medical Association, South Bend, Sept. 23-25.
Kentucky State Medical Association, Lexington, Sept. 27-30.
Minnesota State Medical Association, St. Paul, Sept. 29-30.
Mississippi Valley Medical Association, Chicago, Oct. 26-28.
New England Surgical Society, Providence, R. I., Oct. 6-7.
New Mexico Medical Society, Roswell, Oct. 15-16.
Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 4-7.
Tri-State District Medical Society, Waterloo, Iowa, Oct. 4-7.
Vermont State Medical Society, Rutland, Oct. 7-8.
Virginia, Medical Society of, Petersburg, Oct. 26-29.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, Chicago

June, 1920, 3, No. 6

Pseudotumors of Uveal Tract. E. Jackson, Denver.—p. 397.
Hyperplastic Subconjunctivitis. H. Mel. Morton, Minneapolis.—p. 402.
Congenital Atresia of Lacrimal Duct. C. S. G. Nagel, San Francisco.—p. 406.
Visual Acuity at Low Illumination and Use of Illumination Scale for Detection of Small Errors in Refraction. C. E. Ferree and G. Rand, Bryn Mawr, Pa.—p. 408.
A Field Investigation of Etiology of Trachoma in Eastern Kentucky. Stereomicrometer. H. J. Howard, Feking, China.—p. 417.
F. B. Eaton, San Francisco.—p. 422.
Ophthalmic Service of a Division of Belgian Army in Field. M. Danis, Brussels, Belgium.—p. 427.
Operation for Keratoconus; Report of Two Cases. A. S. Green and L. D. Green, San Francisco.—p. 429.

Archives of Dermatology and Syphilology, Chicago

September, 1920, 2, No. 3

Some Thoughts on Precedent. M. F. Engman, St. Louis.—p. 273.
*Chemistry of Arsphenamin and Its Relation to Toxicity. G. W. Raiziss and A. Proskouriakoff, Philadelphia.—p. 280.
*Summary of Experimental Studies on Histopathologic Changes Produced by Arsphenamin and Neo-Arsphenamin. J. A. Kolmer and B. Lucke, Philadelphia.—p. 289.
*Salient Facts Regarding Toxicity of Arsphenamin and Neo-Arsphenamin. G. B. Roth, Washington, D. C.—p. 292.
Applications and Limitations of Arsphenamins in Therapeutics. J. H. Stokes, Rochester, Minn.—p. 303.
Use of Permanent Solution of Arsphenamin. D. D. Stetson, New York.—p. 324.
Polyneuritis Plus Dermatitis Exfoliativa Following Neo-Arsphenamin. B. B. Beeson, Chicago.—p. 337.
*Provocative Procedures in Diagnosis of Syphilis. P. A. O'Leary, Rochester, Minn.—p. 348.
Stability of Silver Stains as Applied to Spirillar Organisms. T. G. Perrin, Mexico, D. F.—p. 354.
Case of Lichen Planus Linearis: Its Relation to a Cutaneous Nerve Experimentally Shown. L. W. Ketron, Baltimore.—p. 358.
*Borderline Case of Neurotic Excoriations. W. A. Pusey, Chicago.—p. 361.
*Protein Sensitization in Eczema. Report of Seventy-Eight Cases. M. A. Ramirez, New York.—p. 365.
Adenoma Sebaceum Associated with Teratoma of Kidney. Report of Case. E. D. Crutchfield, Galveston, Texas.—p. 368.

Arsphenamin Toxicity.—Analytic study of arsphenamin leads Raiziss and Proskouriakoff to believe that the impurity causing reactions in patients is present only in very small quantities.

Tissue Changes Produced by Arsphenamin.—Kolmer and Lucke found that tissue injuries produced by neo-arsphenamin have generally been of the same character as those produced by arsphenamin, but, in comparison to dosage, have been less severe. The arsphenamins and neo-arsphenamins prepared by different laboratories produced similar changes.

Toxicity of Neo-Arsphenamin.—Roth claims that neo-arsphenamin behaves differently in the animal organism from arsphenamin and should not be regarded simply as arsphenamin in a convenient form for administration. When administered intravenously and at a constant rate, acid solutions of arsphenamin are much more toxic than the corresponding alkaline solutions, the toxicity of the acid solutions increasing with the concentration. A properly alkalinized 2 per cent. arsphenamin solution when administered intravenously and in high dosage is slightly more toxic than a 0.5 per cent. solution. The toxicity of properly alkalinized arsphenamin increases greatly as the rate of its intravenous administration is increased. Rate of administration is, therefore, an important factor in determining toxicity. When neo-arsphenamin is found to dissolve with comparative difficulty, it is generally highly toxic and should be discarded. Shaking aqueous solutions of neo-arsphenamin or alkalinized arsphenamin in the presence of air increases their toxicity markedly. When a 4 per cent. solution of neo-arsphenamin is shaken vigorously for ten minutes its toxicity is more than quadrupled. Arsphenamin preparations made in the United States are generally less toxic than those of foreign manufacture. Neo-arsphenamin preparations made in the United States compare favorably with, and in certain instances are decidedly less toxic than, most of the foreign products.

Provocative in Diagnosis of Syphilis.—The provocative procedure employed by the section of dermatology and syphilology of the Mayo Clinic consists of a single intravenous injection of 3 dg. of arsphenamin, with a series of seven Wassermann tests made at twenty-four hour intervals, the first blood being drawn just before the arsphenamin injection, and, if indicated, daily observation of the patient.

Malingering or Neurotic Excoriation.—Pusey reports a case in which the amount of destruction of the skin equaled that in many cases of typical malingering, but in this case the psychic condition was that seen in neurotic excoriations. He suggests that it may, perhaps, be regarded as a borderline case between the two conditions.

Protein Sensitisation in Eczema.—Of seventy-eight cases of eczema tested with proteins by Ramirez, thirty gave positive skin tests. Like asthma, anaphylactic eczema occurs more frequently under the age of 30. Eczema associated with asthma or hay-fever is usually anaphylactic. Only a small percentage of all eczema cases are anaphylactic, but it is essential that patients be tested thoroughly in order that they may be classified properly and treated correctly.

Boston Medical and Surgical Journal

Sept. 2, 1920, 183, No. 10

*Multiple Resections of Small Intestine. E. L. Hunt, Worcester, Mass.—p. 275.
*Results of Cholecystectomy with Particular Reference to Dilatation of Common Duct. J. Homans, Boston.—p. 282.
*Acute Intestinal Obstruction: A Study of a Second Series of Cases from The Massachusetts General Hospital. E. P. Richardson, Boston.—p. 288.
*Cancer: Factors Entering into Delay in Surgical Treatment. C. C. Simmons and E. M. Daland, Boston.—p. 298.

Multiple Resections of Small Intestine.—Hunt reports a case of bullet wound of the abdomen with multiple perforations of the bowel and mesentery, treated by primary resection of three segments with end to end anastomoses by means of Murphy buttons, secondary drainage of jejunum, final closure of fistula, and complete recovery. In cases of severe traumatism to the intestine Hunt advises that multiple resections be made when a single resection would deprive the patient of an undue amount of bowel. In such cases, where the paralytic ileus has begun or its supervision is to be anticipated clearly, primary enterostomy proximal to the traumatized area is theoretically indicated. In cases of postoperative ileus enterostomy should not be deferred too long.

Results of Cholecystectomy.—The histories of 223 cases of cholecystectomy were analyzed by Homans to discover, if possible, whether the ducts were dilated in the presence of an obvious loss of the normal function of the gallbladder, and whether any particular symptoms corresponded to this condition. Of the 223 patients, twelve died in consequence of the operation. Of the remaining 211, forty-six have not been traced, leaving only 165 patients among whom the percentages of successes and failures can be established. Of these, six have had recurrences and may be called failures, thirty-two are improved but still suffer from symptoms more or less similar to those for which operation was performed, and the remaining 127 patients (77 per cent. of the traced cases) can be considered well as regards the cure of complaints directly or indirectly referable to the gallbladder and biliary passages. Homans states that there is satisfactory experimental evidence that removal of the gallbladder is followed by dilatation of the extrahepatic biliary ducts, and there is also clinical evidence that destruction or loss of function of the gallbladder within the human body is frequently followed by duct dilatation. Duct dilatation occasionally occurs while the gallbladder is functioning and in the absence of common duct stone. There are no symptoms characteristic of dilatation of the biliary ducts. There is no evidence that dilatation of the biliary ducts is actually harmful to the individual.

Acute Intestinal Obstruction.—A series of 118 cases, occurring through the ten years 1908 to 1917, inclusive, are analyzed by Richardson. The general mortality of 41.5 per cent., as compared with a previous mortality of 60 per cent., shows a drop along certain lines particularly, as in early postoperative obstruction, volvulus, and mesenteric thrombosis. The impor-

tant field for improvement in results lies in earlier diagnosis and early operation, at a stage when so difficult a problem for surgical treatment is not presented.

Cancer Statistics.—This paper is based on 518 cases. The average age of the patients was 52.9 years. The average duration of the total number of cases was 12.49 months. The average duration of the disease from the onset of symptoms to the first consultation with a physician was 5.4 months. The first symptom was tumor or ulcer in 36 per cent. of the cases, pain in 25 per cent., what may be termed symptoms peculiar to the organ in 18 per cent., and miscellaneous in 21 per cent. The average delay in all cases on the part of the physician from the time the patient first consulted him to the time operation was advised was three months. The average delay on the part of the patient after operation was advised until it was performed was three weeks. Of all the cases less than one half (44.5 per cent.) were considered suitable for an attempt at cure by a radical operation, and in these cases there was an operative mortality of 15 per cent., confined chiefly to operations on the intestinal and genito-urinary tracts. In 28 per cent. of the cases no operation was performed or exploration only, while in 27 per cent. a palliative operation, such as gastro-enterostomy, cauterization of the cervix, or tracheotomy, was done. The operative mortality following these palliative procedures was nearly as great (14.5 per cent.) as in those cases in which a radical cure was attempted, but in this second group the patient was often in poor physical condition and the operation was not one of choice. In cancer of the buccal cavity and lip, the mortality was 4 per cent.; in cancer of the abdominal cavity in which a laparotomy was performed the mortality was 32 per cent., and in cancer of the genito-urinary tract 27 per cent. In operations for cancer of other organs, breast, uterus, larynx, skin, etc., the mortality was 4.5 per cent. Of the entire group 37.7 per cent. of the patients entering the hospital survived a radical operation. The percentage of cures varies greatly in carcinoma of different regions but it seems fair to say that not over 25 per cent. of patients subjected to a radical operation are cured, which corresponds to 9.4 per cent. of all cases admitted to the hospital. Considering the cases in groups, the expectation of operative cure in consecutive cases entering a general hospital is as follows: carcinoma of the buccal cavity (if 16 per cent. of all patients surviving a radical operation are cured), 10 per cent.; carcinoma of the cervix (if 25 per cent. of the patients are cured), 8.7 per cent.; carcinoma of the rectum (if 20 per cent. of the patients are cured) 5.4 per cent.; carcinoma of the stomach (if 20 per cent. of the patients operated on are cured, 1.2 per cent. The chief cause of death in all operative cases was sepsis in some form. Forty-six patients (11.4 per cent.) gave a history of cancer occurring in the immediate family.

Canadian Journal of Mental Hygiene, Toronto

July, 1920, 2, No. 2

Psychiatry and Internal Medicine. C. F. Martin, Montreal.—p. 137.
Childhood: The Golden Period for Mental Hygiene. W. A. White, Washington, D. C.—p. 144.
Trade-Unionism and Temperament. E. E. Southard, Boston.—p. 153.
Work of Psychopathic Hospital. A. G. Morphy, Montreal.—p. 167.
Work of Manitoba Psychopathic Hospital. A. T. Mathers.—p. 177.
Survey of Toronto Public Schools. E. R. Clarke, Toronto.—p. 182.
An Experiment in Grading Children. E. A. Irwin.—p. 186.

Florida Medical Association Journal, St. Augustine and Jacksonville

August, 1920, 7, No. 2

Common Surgical Conditions of Knee. E. Jelks, Jacksonville.—p. 20.
Suggested Improvements in Caring for Mental Cases Prior to Admission to State Hospital. W. M. Bevis, Chattahoochee.—p. 23.
Diagnosis of Chronic Gastritis. G. M. Niles, Atlanta.—p. 24.

Journal of Cancer Research, Baltimore

July, 1920, 5, No. 3

*Primary Spontaneous Tumors of Ovary in Mice. Studies on Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, H. F. Holmes and H. Gideon Wells, Chicago.—p. 205.
*Rhabdomyoma of Ovary. H. E. Himwich, New York.—p. 227.
Malignancy of Crown Gall and Its Analogy to Animal Cancer. I. Levin and M. Levine, New York.—p. 243.
*Kinetic and Invasive Power of Regenerating Tissue and Similarities in Behavior of Thyroid Transplants and Carcinomas. L. Loeb, St. Louis.—p. 261.
Glycemic Reaction in Its Relation to Transplatable Malignant Tumors. G. L. Rohdenburg, New York.
Skin Involvement in Breast Cancer with Reference to Its Bearing on Interpretation of Appearances of Transition Between Normal Epithelium and Cancer. A. R. Kilgore, Baltimore.—p. 291.

Primary Tumors of Ovary.—Among 22,000 mice of the Slye stock dying natural deaths at all ages were forty-four with spontaneous primary ovarian tumors not including simple ovarian cysts. Of these, thirty-eight had simple benign solid papillary adenomas, only occasionally with slight cyst formation. One showed a typical papillary cystoma. One had a typical solid teratoma containing a great diversity of tissue elements. Of the thirty-eight cases of solid papillary adenomas, nineteen, or 50 per cent., were bilateral, so that there were fifty-seven tumors of this class. There were four unquestionably primary malignant tumors of the ovary, all showing the "mesothelioma" type of growth characteristic of malignant tumors derived from the sex glands; one of these produced perirenal metastases. There was one other tumor of the same type primary in either the ovary or the suprarenal. Two round cell sarcomas were found that arose either from the ovary or some other organ, while two other sarcomas had produced secondary growths in the ovary. Of the forty-four mice with primary ovarian tumors, twenty-six had tumors in other parts of the body. In the literature were found reports of eight other cases of tumors arising in the ovaries of mice which exhibited quite the same characteristics as the tumors described in this paper.

Rhabdomyoma of Ovary.—A girl, 1½ years of age, had a mass in the abdomen reaching half way to the umbilicus. In shape and size it seemed to resemble a kidney with the long diameter horizontal. It was freely movable. There were no subjective symptoms. At the time of the operation, nine months later, the mass appeared to fill the whole abdomen up to the umbilicus. A well encapsulated tumor was found, arising apparently from the region of the left ovary, filling the pelvis, with a narrower upper portion lying under the inferior surface of the liver. The capsule was attached to the anterior abdominal wall posterior to the umbilicus. The entire new growth was removed. In the process of removing the tumor the capsule was broken so that some of the myxomatous tissue fell into the abdominal cavity. The child died of abdominal recurrence three months after the removal of the original tumor. The tumor was a rhabdomyoma of the ovary. Teratoma is a twin inclusion. A group of cells was found in this tumor which appears only in rhabdomyoma of the heart. Therefore, Himwich says, the present tumor is a rhabdomyoma of the heart of a twin inclusion.

Invasive Power of Regenerating Thyroid Tissues.—The observations recorded by Loeb demonstrate that some of the fundamental characteristics of cancerous growth can be found in regenerative growth. In addition, they bring out very sharply some of the factors which, under ordinary conditions restrain regenerative proliferation. Regenerating tissue of the thyroid may possess an invasive power not unlike that of cancerous tissue. Growing transplants of thyroid tissue may apparently show a transition from acinar to alveolar structure. The kinetic and invasive activity of regenerating thyroid tissue is associated with febroblastic activity. In contradistinction to carcinomatous growth regenerating growth regenerating growth of the thyroid comes to a standstill, although the typical structures of the thyroid may not yet have been reestablished and the cell strands are as yet without their normal connections with neighboring epithelium.

Journal of Immunology, Baltimore

July, 1920, 5, No. 4

*Precipitin Test in Cases of Pneumococcus Empyema. C. Floyd, Boston.—p. 321.
*Nephelometric Method of Estimating Number of Organisms in a Vaccine. G. C. Dunham, Washington, D. C.—p. 337.
Effect of Ultraviolet Rays on Antigenic Properties. I. Studies on Meningococcus. F. Eberson, St. Louis.—p. 345.
*Hypersensitiveness: Anaphylaxis and Allergy. A. F. Coca, New York.—p. 363.
Relation of Sputum Bacteria to Asthma. F. M. Rackemann, Boston.—p. 373.
Constitution of Complements of Different Animals. T. J. Mackie, Cape Town, South Africa.—p. 379.
Placental Transmission of So-Called Normal Antibodies. II. Antitryptic-Acting Bodies. G. C. Reyman.—p. 391.

Precipitin Test in Pneumococcus Empyema.—Twenty-two cases of empyema were studied by Floyd as to the presence of demonstrable precipitins in the exudation and their fluctuation; and the effect on them of the introduction of appropriate immune serum. At the same time, the nature of the infection, the entrance of secondary invaders, and the amount of pleural phagocytosis was noted. The amount of demonstrable agglutinin in the exudation of empyema is often very small, but when present it is generally a favorable prognostic sign. Phagocytosis runs a parallel course with increasing pleural resistance. Pleural irrigation with an appropriate immune serum in pneumococcus empyema is suggested as a means of treatment in order to increase locally those immune substances that tend to limit the duration of the infection.

Estimating Bacteria in Vaccine.—A method is described by Dunham for estimating the number of organisms per cubic centimeter in a vaccine by means of the nephelometer. The estimation can be made in less time and with less labor than a microscopic count, and the results are fully as accurate as those obtained with the microscope.

Anaphylaxis.—In view of the facts that form the basis of the discussion by Coca it seems necessary to conclude: first, that if anaphylaxis does occur in man, it does so only very rarely, and, secondly, that there is no positive evidence that anaphylaxis occurs at all in human beings.

Journal of Laboratory and Clinical Medicine, St. Louis

August, 1920, 5, No. 11

*Rubber Tubing as a Factor in Reaction to the Blood Transfusion. G. J. Busman, Rochester, Minn.—p. 693.
Chemical Changes in Blood in Disease. V. Carbon Dioxid Combining Power. V. C. Meyers, New York.—p. 700.
*Chlorid Metabolism. H. F. Host, Christiania, Norway.—p. 713.
*Blood Sugar Tolerance as an Index in Early Diagnosis and Roentgen-Ray Treatment of Hyperthyroidism. E. R. Wilson, Los Angeles, Calif.
Nutrition Experiments with Rats. E. L. Ferry, New Haven, Conn. —p. 735.
New Form of Etherizing Device for Use in Animal Experimentation. G. Raap and D. E. Jackson, Cincinnati.—p. 745.

Rubber Tubing Causes Reaction in Blood Transfusion.—The brand of supposedly pure gum rubber tubing which in preliminary experiments by Stokes and Busman produced reaction in arsphenamin administration is apparently also able, when new, to produce reaction if used in blood transfusion work. New tubing can be rendered harmless and incapable of producing reaction by soaking for six hours in normal sodium hydroxid solution. The toxic substance is taken up in sufficient amounts to produce reaction in patients receiving transfusions of citrated blood through 80 cm. of new rubber tubing of 4 mm. internal diameter. Enough of the toxic agent is taken up by 250 c.c. of normal uncitrated blood drawn through as little as 35 cm. of new tubing (internal diameter, 4 mm.) enroute from the vein to the container of citrate solution, to produce marked reaction when given through an old tube. It is not, therefore, necessary that whole blood be citrated to absorb the toxic principle. The mechanically removable débris from the inside of new sterilized tubing does not produce reactions when given in suspension in distilled water or 0.18 per cent. sodium hydroxid solution. The identity and toxicology of the poisonous principle is under investigation.

Chlorid Metabolism.—By means of Bang's micromethod Host examined the concentration of the blood chlorids in several healthy men and women and found it to vary between 0.44 and 0.48 per cent. Bang's method is correct within 5 per cent. The concentration of the chlorids in the serum varied between 0.55 and 0.60 per cent. This great difference between the concentration in blood and serum shows that the chlorids exist chiefly in serum, to a much less degree in the corpuscles. Host examined the chlorid content of blood and urine in nine patients suffering from acute nephritis and who had been taken ill suddenly. They had cephalalgia, edema, increased blood pressure, retention of urea in serum and had protein, blood and casts in the urine. These were typical cases of glomerulonephritis. The experiments with three patients are reported in detail. The chlorid concentration of the blood in two patients suffering from uremia, which represented a combination of the "renal uremia" and the "eclamptic uremia" (Volhard and Fahr) was also determined. Both patients had increased urea in the blood, 0.247 and 0.340 per cent, respectively. They were somnolent, had a systolic blood pressure above 200 and had convulsions. In one case the chlorid concentration in the blood was 0.44 per cent., consequently quite normal, while in the other it was 0.59 per cent., which is the greatest concentration Host has found in the blood.

Blood Sugar Tolerance Determination in Hyperthyroidism.—The blood sugar tolerance test Wilson finds of distinct importance in the early diagnosis of hyperthyroidism. Seemingly advanced cases of hyperthyroidism will respond but moderately to roentgen-ray therapy, as shown by the blood sugar tolerance test. An abnormal blood sugar tolerance curve when due to hyperthyroidism will tend to approach the normal under roentgen-ray therapy, indicating that excessive toxic secretion is lessened. Clinical manifestations of hyperthyroidism may be lessened, but an abnormal blood sugar tolerance curve may exist after series of roentgen treatments. The blood sugar tolerance curve is an index to thyroid hypersecretion in those cases in which toxic secretion has manifested itself by a decreased glucose tolerance.

Journal of Medical Research Boston

May, 1920, 41, No. 4

Pathologic Histology of Tonsils Containing Hemolytic Streptococci. E. Kellert. Albany, N. Y.—p. 387.
*Precise Titration of Complement. S. C. Brooks, Boston.—p. 399.
Regeneration of Complement after Radiation or Heating. S. C. Brooks, Boston.—p. 411.
*Action of Benzol. VI. Benzol Vapor Leukopenia (Rabbit). H. G. Weiskotten, C. B. F. Gibbs, E. O. Boggs and E. R. Templeton, Syracuse, N. Y.—p. 425.
*Histologic Changes of Different Types of Carcinoma after Exposure to Radium Rays. N. M. Ahrr, Baltimore.—p. 439.
*Types of Streptococci Found in Sputum of Bronchial Asthmatics. J. Adkinson and I. C. Walker, Boston.—p. 457.
*Study of Streptococci Obtained from Mouth in Cases of Chorea. C. Floyd, Boston.—p. 467.
*Studies on Compensatory Hypertrophy of Thyroid Gland. IV. Influence of Iodin on Hypertrophy of Thyroid. L. Loeb, St. Louis.—p. 481.

Precise Titration of Complement.—A critical study of the conditions causing error in complement titration and the adoption of appropriate modifications of the customary methods has enabled Brooks to titrate complement with a probable error of about 1 per cent. in the relative efficiency of one or more samples. This far surpasses in accuracy any method hitherto in use. The most important modifications are: (1) substitution of a physiologically balanced solution especially adapted to the red blood cells employed, in place of the physiologic sodium chlorid solution usually used as a diluent; (2) determinations of the proportion of cells hemolyzed in each mixture rather than of the number of cells; i. e., the depth of the color of the supernatant fluid; (3) interpretation of the results of titration by determining the relative amounts of complement necessary to cause given degrees of hemolysis in a definite length of time. This is done by graphic interpolation in the most accurately known portion of the titration curves, chosen degrees of partial hemolysis being substituted for complete hemolysis in determining the end point.

Action of Benzol.—Exposure of rabbits to benzol vapor with maximum sublethal dosage causes leukopenia, hemorrhages and slight anemia. The percentage and absolute decrease of small mononuclears is greater than that of polymorphonuclear amphophils. Apparently, after discontinuance of exposure, the total leukocyte curve rises to a permanent general level, lower than that existing before exposure. This relative leukopenia is permanent. It is due to a failure of the absolute small mononuclear curve to rise to as high a level as that existing before exposure. The results of exposure are of the same general nature as those produced by subcutaneous injections of olive oil benzol mixture. Diphasic leukopenia was not observed.

Carcinoma After Exposure to Radium Rays.—Alter claims that different types of carcinoma show characteristically different behavior toward the rays of radium. The behavior

depends mainly on the state of differentiation of the different types of carcinoma. The more undifferentiated and embryonic in type the carcinoma is, the more effective is the action of radium rays on it. On the differentiated types the rays of radium have a hastening effect. If the effect of these rays is proportional to the absorbed amount, the nuclei and protoplasm of different types of carcinoma and benign tissue absorb different amounts of the rays.

Types of Streptococci in Sputum.—Comparison of the types of streptococci isolated by Adkinson and Walker from the sputum of bronchial asthmatics during two seasons, which were nearly identical for several months, and then, later on, were markedly different in the severity and variation of the weather, shows that the types of streptococcus present are constant and not influenced by conditions of temperature and weather. The types of streptococci present are not numerous. Practically all of the hemolytic streptococci were of the four types, namely, *S. subacidus, S. anginosus, S. pyogenes* and *S. infrequens,* with rarely *S. hemolyticus* i and equi. Practically all of the nonhemolytic streptococci were of three types, namely, *S. ignavus, S. salivarius* and *S. mitis* with rarely *S. fecalis* or *S. nonhemolyticus* i. The types of organisms present in the sputum of asthmatics are subject to constant and frequent variation, and the organisms present in the nasal secretion may be the same or entirely different from those occurring in the sputum. Therefore the present work confirms the results of the previous study, and it is still more evident that autogenous vaccine, rather than stock vaccine, should be employed in the treatment of bronchial asthma, and that autogenous vaccine should be made frequently rather than to use the same vaccine continuously. Furthermore, in doing skin tests on bronchial asthmatics, it is advisable to use the protein of the types of streptococci which are frequently found in the sputum as noted above, rather than one single strain or a combination of all known types of strains.

Streptococci from Mouth of Chorea Cases.—As a result of experimental work in the production of endocarditis, acute articular rheumatism and chorea, one or more members of the group of streptococci have been found by Floyd to be the organisms producing pathologic results. Positive cultural results in clinical cases have, in the main, shown members of the streptococcus group. The clinical sequence of tonsillitis, articular rheumatism, with chorea or endocarditis, points to a localized lesion producing periodic systemic infection. Experimental work shows a much higher percentage of carriers of certain types of virulent streptococci in the substance of the tonsils and about the teeth in cases of chorea than occur in normal controls. The frequency with which virulent strains of streptococci are found in the mouth in cases of infection of the meninges, the joint surfaces and the endocardium suggest more than a casual relationship between their presence in the mouth and systemic disease. It is suggested that the teeth and tonsils in all probability offer two portals of entry to the body for streptococci in producing any one of these clinically grouped diseases.

Hypertrophy of Thyroid Gland.—According to Loeb, administration of iodin does not diminish the intensity of the hypertrophic changes in the thyroid gland of the guinea-pig which follow extirpation of such a quantity of the gland as is necessary to call forth compensatory hypertrophy. There is, on the contrary, an indication that possibly iodin preparations increase such hypertrophic changes. The effect of iodin on compensatory hypertrophy differs, therefore, markedly from that on endemic goiter. In those experiments in which great parts of the thyroid gland were extirpated during the summer months, compensatory hypertrophy resulted in a much lower percentage of cases than in experiments carried out in the colder season. This suggests a relation between compensatory hypertrophy and temperature.

Journal of Urology, Baltimore

June, 1920, **4**, No. 3

*Pathology of Renal Pelvis in Two Cases Showing Hematuria of So-Called Essential Type. W. C. Quinby, Boston.—p. 209.
Idiopathic Gangrene of Scrotum. Alexander Randall, Philadelphia. —p. 219.
Spinal Anesthesia in Urology. G. H. Smith, Boston.—p. 237.
*Cure of Prostatic Abscesses. A. R. Stevens, New York.—p. 249.
Physiologic and Pharmacologic Studies of Prostate. D. I. Macht and S. Matsumoto, Baltimore.—p. 255.
*Local Treatment for Seminal Vesiculitis. V. D. Lespinasse, Chicago. —p. 265.
Anatomic Embryologic and Physiologic Studies of Trigone and Neck of Bladder. M. B. Wesson, Baltimore.—p. 279.
*Treatment of Essential Hematuria by Intrapelvic Injections of Silver Nitrate. A. G. Rytina, Baltimore.—p. 317.

Renal Hematuria.—Two cases are reported by Quinby in each of which a kidney was removed and subjected to careful pathologic study. Although the cause for this condition is not clear the location of the hemorrhage just under the epithelium of the pelvis and to a less extent in the substance of the papilla itself makes a definite and clear cut picture. Whether the condition has been caused by soluble toxins which have chosen these areas of the kidney as their point of elective action or whether it is due to infection by bacteria is not to be determined. A most careful search of the material at hand failed entirely to demonstrate bacteria, even in cases which showed evidences of inflammation.

Treatment of Prostatic Abscess.—The routine employed by Stevens has been to clean the patient, place him in the lithotomy position, administer gas and oxygen anesthesia and introduce a rather pointed sound with a small curve (F. 23) into the urethra. One finger in the rectum controls the rest of the procedure. The tip of the sound is located at the apex of the prostate, introduced about 2 cm. further, turned 90 degrees and with care forced through the lateral wall of the urethra into the corresponding lateral lobe of the prostate. It is then withdrawn to the apex of the prostate and in similar manner made to enter the other lateral lobe. To be sure of a larger opening for drainage, a larger sound (F. 28) is put through the same maneuver. This, however, may be an unnecessary step. At this stage, slight pressure on the prostate produces, in most instances, a copious discharge of pus at the external urinary meatus. A simple irrigation fluid is then forced into the urethra, washing the urethral contents into the bladder. Finally a large rubber catheter is introduced and the bladder irrigated until clean. No catheter is left in the urethra. Eight patients have been treated in this way.

Treatment of Seminal Vesiculitis.—Lespinasse states that puncture of the vas deferens and injection of fluids through it into the seminal vesicle is possible without cutting the skin. Acriflavine solutions in 1:1,000 strength destroy the epithelium of the vas and hence cannot be used. Sodium bicarbonate solution, 1 per cent. strength, is proper and safe. In 5 per cent. solution it is destructive to the epithelium of the vas. The only medicament that can be used safely by means of precutaneous puncture of the vas is bactericidal serum.

Silver Nitrate for Essential Hematuria.—The treatment of essential hematuria by intrapelvic injections of 5 per cent. silver nitrate solution is not considered by Rytina a specific for all these cases but is mentioned as a method that has been productive of good results, after many of the previously mentioned methods have failed to achieve the desired result. The technic consists of the injection of from 4 to 8 c.c. of a 5 per cent. solution of silver nitrate into the kidney pelvis after a thorough urologic examination has eliminated, as far as possible, the presence of stone, tumor, or tuberculosis from the bleeding side. The treatment is repeated in a few days if the desired result has not been achieved. The treatment is usually followed by some reaction characterized by pain and increase in the hematuria. Three cases of hematuria are reported in which this method was productive of good results.

Kentucky Medical Journal, Bowling Green

August, 1920, **18**, No. 8

Industrial Medicine. J. O. Jenkins, Newport.—p. 271.
Value of Roentgen Ray to Surgeon. J. G. Sherrill, Louisville.—p. 275.
Modern Advances in Diagnosis and Treatment of Cerebrospinal Meningitis. E. B. Bradley, Lexington.—p. 282.
Influenza. D. S. Bonar, Newport.—p. 288.
Influenza: Management of Nose, Throat and Ears. R. W. Bledsoe, Covington.—p. 289.
Symptoms, Diagnosis and Treatment of Influenza. R. L. Bird, Covington.—p. 291.
Influenza Sequels. F. S. Clark, Rome.—p. 293.
Diagnosis of Influenza. W. L. Tyler, Curdsville.—p. 294.
Influenza. W. Burne, Russellville.—p. 295.
Goiter. B. F. Van Meter, Lexington.—p. 297.
Sleeping Sickness. J. F. Dunn, Arlington.—p. 300.

Maine Medical Association Journal, Portland

August, 1920, **11**, No. 1

Workmen's Compensation as It Affects the Doctor. A. Robinson, Portland.—p. 3.
Patent Foods in Infant Feeding. T. A. Foster, Portland.—p. 14.

Medical Record, New York

Sept. 4, 1920, **98**, No. 10

Mobilization in Injured, Infected and Fractured Joints. C. A. McWilliams, New York.—p. 379.
Dilatation and Plication of Caput Coli. D. H. Stewart, New York. —p. 383.
Surgery of Neck. E. G. Jones, Atlanta, Ga.—p. 386.
Anomalous Sigmoid Sinus Thrombosis; Report of Cases. J. F. Barnhill, Indianapolis.—p. 388.
Principles of Suprarenal Support. H. H. Harrower, Glendale, Calif. —p. 391.
Germ Plasm. C. I. Redfield, Chicago.—p. 396.

New York Medical Journal

Sept. 4, 1920, **112**, No. 10

Fractures of Long Bones and Their Repair. E. H. Smith, San Francisco.—p. 301.
*Splenectomy; Report of Cases. G. I. Miller, Brooklyn.—p. 304.
Horatio C. Wood. H. Beates, Jr., Philadelphia.—p. 308.
Evolution of Modern Medicine Leading to Group Diagnosis. H. Goldstein, New York.—p. 312.
Binocular Single Vision. G. W. Vandergrift, New York.—p. 320.
Present Status of Rabies. B. M. Underhill, Philadelphia.—p. 323.
Protein Fever. G. F. Cott, Buffalo.—p. 325.

Traumatic Puncture of Spleen; Splenectomy.—Miller cites a case in which a pneumonia was followed by an empyema and the attending physician decided to treat the patient by introducing a large cannula for drainage instead of performing an open operation. The patient experienced considerable pain and shortly afterward collapsed. Three hours later Miller found her in bed, looking very pale, her lips white and the pulse faintly perceptible. She showed all the evidences of abdominal hemorrhage. On opening the abdomen, he found a ruptured ectopic gestation, and a ragged rent in the convex surface of the spleen, caused by the thrust of the cannula. He repaired the torn spleen with two mattress sutures. The patient made an uneventful recovery. In a case of splenic anemia a successful splenectomy was done. Four or five accessory spleens, about the size of walnuts, were present. The patient has been absolutely cured by the operation. In a case of Banti's disease, in which a splenectomy was done, the result was death about two weeks after operation.

Sept. 11, 1920, **112**, No. 11

Medical Men in the American Revolution. Louis C. Duncan, Washington, D. C.—p. 345.
Historical Notes on Practice of Medicine in New York City. G. L. Rohdenburg, New York.—p. 349.
Dental Infection. S. Tousey, New York.—p. 353.
*Relationship of Anemias to Life Insurance. H. Z. Giffin, Rochester, Minn.—p. 358.
Clinical Significance of Cardiac Murmurs. F. A. Jones, Memphis. —p. 362.
Fissure Fractures of Tibia: Report of Cases. J. Grossman, New York. —p. 364.
Intravenous Quinin Treatment of Malaria. B. S. Wyatt, Plano, Texas.—p. 366.
Intravenous Medication. C. G. Cumston, Geneva, Switzerland.—p. 369.
Proper Equipment for a Rural Physician. M. A. Hays, New York. —p. 371.

Pernicious Anemia and Life Insurance.—Griffin concludes that the increase in the incidence of pernicious anemia makes it advisable to consider this disease separately in mortality statistics, rather than to include it among anemias in general. Medical examiners should be required to report a hemoglobin estimation of each applicant (the use of a simple scale would be sufficient). Blood smears forwarded to the laboratory of the central offices by examining physicians would be of great assistance in eliminating for insurance applicants with pernicious anemia and leukemia. Applicants with anemia from chronic recurrent hemorrhage, anemia from insufficiencies of diet, or as a result of functional dysphagia, may be expected to recover within one year at most after proper treatment, and should be given the privilege of reapplication at a subsequent time. Applicants who have had splenectomy for splenic anemia, provided cirrhosis of the liver, gallbladder disease, and thrombosis of the splenic vessels are not present, might be considered acceptable risks for term insurance after having been well for five years following operation. Applicants who have recovered following splenectomy for hemolytic jaundice may safely be considered for a more liberal form of policy if they have remained well for five years.

South Carolina Medical Ass'n Journal, Greenville

August, 1920, **16**, No. 8

Schick Test and Toxin-Antitoxin Immunization for Diphtheria. C. V. Akin.—p. 190.
Cancer of Stomach. R. L. Sanders and J. J. McCaughan, Memphis. —p. 193.

Texas State Journal of Medicine, Fort Worth

August, 1920, **16**, No. 4

Surgical Principles Involved in Treatment of Rectal Fistula. I. C. Chase, Ft. Worth.—p. 154.
Paraffin Treatment of Burns. L. G. Witherspoon, El Paso.—p. 158.
Focal Infection as Factor in Production of Secondary Inflammation Following Operations and Injuries of Eye. R. H. T. Mann, Texarkana, Tex.—p. 159.
Spinal Anesthesia. C. C. Green, Houston.—p. 160.
Rheumatism. N. D. Buie and A. J. Streit, Marlin.—p. 162.
Cutaneous Reactions to Focal Infection; Report of Two Cases. I. L. McGlasson, San Antonio.—p. 165.
Present Status of Blood Chemistry in Nephritis. A. E. Greer, Houston.—p. 167.
Treatment of Syphilis in Its Early Stage. W. O. Williams, Houston. —p. 170.
Cerebrospinal Fluid in Syphilis. J. H. Black, Dallas.—p. 174.

Virginia Medical Monthly, Richmond

August, 1920, **47**, No. 5

Gastric and Duodenal Ulcer. G. P. Hamner, Lynchburg.—p. 197.
Roentgen-Ray Diagnosis of Gastric and Duodenal Ulcers. H. B. Spencer, Lynchburg.—p. 201.
Diagnostic Value of Ear Examinations by Turning and Douching Tests. C. R. Dufour, Washington, D. C.—p. 204.
Technic for Enucleation of Tonsils with Local Anesthesia; Report of Two Cases. E. G. Gill, Roanoke.—p. 210.
Theory and Practice of Autogenous Vaccines. E. C. L. Miller, Richmond.—p. 213.

Wisconsin Medical Journal, Milwaukee

August, 1920, **19**, No. 3

Surgical Work at an Evacuation Hospital. C. A. Evans, Milwaukee. —p. 99.
Tuberculous Kidney. A. G. Sullivan, Madison.—p. 104.
Bacteriologic Examination of Wounds to Determine Time of Closure. E. L. Tharinger, Milwaukee.—p. 107.
Headache in Its Relation to Eye Strain. G. I. Hogue, Milwaukee.—p. 109.
My Experience as an Army Surgeon. T. W. Nuzum, Janesville.—p. 112.
American Army in Last German Drive. J. W. Frew, Milwaukee.—p. 115.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Glasgow Medical Journal

August, 1920, **94**, No. 2

*Digestion and Absorption of Fats in Case of Congenital Atresia of Bile Ducts. H. S. Hutchison and G. B. Fleming.—p. 65.
Psychotherapy in General Practice. D. Yellowlees.—p. 72.
War Pensions. J. Green.—p. 91.
*Method for Test Meals. J. MacIntyre.—p. 101.

Fat Digestion in Bile Duct Atresia.—In the case studied by Hutchison and Fleming there was complete atresia of the bile ducts, and no bile entered the gut. The digestion of fat by fat splitting was only slightly inhibited. Fat absorption was greatly decreased. The bile therefore seems to have only a slight influence on the fat splitting properties of the pancreatic secretion. Its chief rôle is to aid absorption.

Evacuator for Stomach Contents.—The evacuator devised by MacIntyre consists of a wide-mouth bottle (of pickle-jar shape) with rubber stopper. The stopper is perforated in two places so as to take two glass tubes bent at right angles, as a Woulfe bottle. One glass tube must be of the caliber of a medium-sized stomach tube, the other of the caliber of an ordinary Higginson's enema syringe. The efferent ("soap and water") end of the syringe are attached to the lesser glass tube by means of rubber tubing, and the external end of the stomach tube is passed in usual fashion, and the bulb

of the Higginson's syringe is pressed. Air is continuously evacuated and stomach contents flow continuously into bottle.

Indian Medical Gazette, Calcutta

July, 1920, 55, No. 7

"Medical" Advertisements in Indian Press. W. D. Sutherland.—p. 241.
*Cases of Fever. R. B. S. Sewell.—p. 244.
Duties and Responsibilities of Students and Practitioners of Medicine. B. H. Nanavatty.—p. 247.
Cases of Human Bites. P. H. Hennessy.—p. 250.
Etiology and Treatment of Pyorrhea Alveolaris. R. Ahmed.—p. 252.
Management of a Drug Godown in India. S. Clarke.—p. 253.
Treatment of Purpura Hemorrhagica. P. S. Khosla.—p. 254.
Treatment of Plague by Solution of Iodin and Camphor. S. Mallanah.—p. 255.
*Plea to Ligate Hydrocele Sac with Living Tissue. M. L. Bundu.—p. 256.
Transverse Inguinal Versus Vertical Scrotal Incision in Operation for Radical Cure of Hydrocele. K. S. Ningam.—p. 257.
Flavine in Ophthalmic Practice. P. Ganguli.—p. 258.
Elephantiasis Scroti Weighing Thirty-Six Pounds. S. T. Hosain.—p. 259.
Two Cases of Abdominal Hydatid Cysts. R. N. Coorlawala.—p. 259.

New Type of Fever.—A type of fever hitherto unrecognized is the basis of Sewell's paper. Thirty-one cases of this particular type of disease were seen. In every case the onset of the fever was abrupt; in the morning a man would be doing his full duty, by the afternoon he would report sick and be found to have an axillary temperature of from 101 to 103 F. The patient almost invariably complained of frontal headache and pain in the lumbar region or in the joints of his limbs. Always it was the larger joints that were affected, most often the knees or elbows, less often the hip joint, shoulders or ankles, and rarely the wrists. The small joints of the hands and feet were practically never affected. In a few cases the onset of the pains was delayed until the patient had been ill for three or four days. Constipation was generally found, but in a few cases there was slight diarrhea. The tongue was moist and slightly coated with a uniform white fur. The lung signs were negative, though several patients complained of a slight cough. The pulse rate was somewhat rapid, but only proportionately to the height of the fever. The heart sounds were normal. In every mild case the fever lasted for only twenty-four or thirty-six hours, after which convalescence set in. In more severe cases the fever continued high for several days and then the temperature showed a slight evening rise for one or two days before finally becoming normal. One of the most interesting features of this type of fever was the marked tendency to a relapse. Out of the thirty-one cases fourteen showed a single relapse of greater or less intensity. In no case was there more than one relapse. In such cases the initial febrile period was, as a rule, comparatively short, rarely lasting longer than two days and frequently being of only twenty-four hours' duration; this was followed by an afebrile period lasting from thirty-six to sixty-four hours, and the temperature then again rose. In mild relapses the temperature only rose to 99 or 100 F. and then dropped to normal and convalescence set in, or there might be a rise to 100 or 101 F. on two consecutive nights; but in a severe case the temperature continued to rise each evening for four or five days and in some cases remained almost continuously raised throughout.

New Operation for Hydrocele.—Bundu proceeds with the incision until the almost bloodless layer of the tunica vaginalis is reached, and which appears as a bluish translucent layer, the water showing underneath and a few tiny blood vessels ramifying in it. This layer is separated and pushed out, and the sac is opened longitudinally in the usual way and in a part which has no vessels, and this obviates any ligaturing of vessels. Bundu then cuts out a strip of this thin layer of the sac, sufficiently long to be used as a ligature and broad enough to give it strength—a piece about 6 inches long and one-half inch broad—and uses it in ligaturing the averted sac, piercing it in four different places. A few extra knots are necessary to prevent it from slipping. The wound is then closed after reposition of the testes. The absence of foreign material prevents any irritation and the living ligature engrafts itself quickly and at once starts obliterating the sac by preventing any falling back of the everted layers.

Journal of Tropical Medicine and Hygiene, London

Aug. 16, 1920, 23, No. 16

*Case of Undulant Fever with Unusual Nerve Sequels. P. W. Bassett-Smith.—p. 201.
Sprue in American. E. J. Wood.—p. 201.

Herpes Zoster in Undulant Fever.—In Smith's case herpes zoster complicated the undulant fever, implicating the posterior root ganglia of the fourth and fifth lumbar nerves. Though the evidence of the specific toxin was abundant, the organism could not be isolated from the blood or urine. Under a course of freshly prepared ordinary melitensis vaccine improvement was marked.

Lancet, London

Aug. 28, 1920, 2, No. 5061

Students' Number, Session 1920-1921.

Medical Journal of Australia, Sidney

Aug. 7, 1920, 2, No. 6

Abdominal Pain and Its Associated Reflex Phenomena. J. I. Hunter.—p. 115.
Bacillary Dysentery. J. Bentley.—p. 122.

Aug. 14, 1920, 2, No. 7

Urinary Infection. A. S. Roe.—p. 141.
*Abdominal Pain and Its Associated Reflex Phenomena. J. I. Hunter.—p. 143.

Abdominal Pain.—An attempt is made by Hunter to interpret abdominal pain by tracing afferent stimuli: (*a*) along the somatic sensory nerves and (*b*) along the splanchnic sensory nerves. It has been noted that: (1) the pain in peritonitis is due to stimulation of the somatic sensory fibers from the extraperitoneal fat. (2) Visceral pain is due to deep sensibility impulses from hypertonic involuntary musculature being transmitted to the same second relay cells as the somatic afferents. Internal pressure or tension is the result of this muscular contraction and not the exciting cause of the pain. (3) The skin and extraperitoneal fat sensory nerves are reflexly connected with the abdominal muscles. When stimulated in peritonitis by exudate or stretching of the parietal peritoneum, the extraperitoneal nerves cause reflex rigidity of these abdominal muscles, the response of which may be localized and specific according to the site of stimulation. (4) The gut wall is connected by sympathetic afferents to efferent sympathetic cells, which excite inhibition of the gut wall. Contraction of the ureter is brought about by similar reflex. Pain occurs when the hypertonicity of the muscle is so great that the impulses can be transmitted by the pain path to the cortex. (5) These sympathetic arcs have a collateral connection with the abdominal muscles by way of the reflex through the anterior horn cells. This is the visceromotor reflex of MacKenzie and rigidity of the muscles results from its stimulation. (6) Rigidity stimulates fibers of deep sensibility and tenderness results. Pain is caused by the stimulation of cells in the pain column of the posterior horn of the cord by either somatic or splanchnic fibers.

Medical Journal of South Africa, Johannesburg

June, 1920, 15, No. 11

Use of Nitrous Oxid and Oxygen with Re-Breathing as a General Surgical Anesthetic. G. W. Daniell.—p. 235.

Practitioner, London

August, 1920, 105, No. 2

*Renal Calculus. H. Lett.—p. 81.
Recent Work on Urinary Surgery. J. W. T. Walker.—p. 93.
*Treatment of Diseased Gallbladder. R. Warren.—p. 102.
*Shock and Its Allied Conditions. J. E. R. McDonagh.—p. 110.
Differences in Value of Different Modes of Auscultation. W. Gordon.—p. 136.
Recent Work in Otology. M. Yearsley.—p. 139.
Subthyroidism. W. F. Stiell.—p. 146.
Influenza and Its Treatment with Phenol. C. B. Richardson.—p. 150.
An Interesting Case of Carditis. G. A. Stephens.—p. 151.

Renal Calculus.—Among Lett's fifty cases were nine cases of pyonephrosis, in six of which nephrectomy was performed, and one case of perinephritic abscess. They all recovered. Among the remaining forty cases, which included several of acute pyelitis, there were two fatal cases. One of these patients had been suffering from calculous anuria and complete suppression of urine for three days. There were calculi

in both kidneys and in the left ureter. Operation was undertaken as a forlorn hope, and merely consisted in draining the pelvis of each kidney. At the postmortem examination, it was found that the patient was also suffering from an attack of acute or chronic endocarditis. The second case was a woman who had had attacks of renal colic for ten years. Lett removed one large stone and three small ones from the right kidney. The operation was straightforward and uncomplicated, but she developed an acute exacerbation of a colitis from which she had suffered for some time, and it proved fatal.

Cholecystectomy and Cholecystotomy.—Of the seventy-six cases analyzed by Warren the gallbladder was excised in thirty-nine while in thirty-seven the bladder was drained and stones removed. In each group two patients died before leaving hospital, so that the primary operative mortality was practically equal, about 5 per cent. In the excision group, the average age was 48, the oldest being 74 and the youngest 26. A considerable number of the patients were aged or of late middle age, so that considering the gravity, in many instances, of the condition for which operation was required, the immediate risk of attacks on the gallbladder compares favorably with other abdominal operations. The cases in which excision was performed, fall into two groups, the acute and the chronic. In the acute group were twenty-four cases, showing all manner of degrees of cholecystitis from gangrene or perforation to simple distention with pus and mucopus; in many there was localized peritonitis. In this group were the two patients who died. In the other group were fifteen cases of chronic cholecystitis, in some cases with a very shrunken gallbladder, filled with stones to a varying extent; none of these died. Of the thirty-seven cases in which drainage was performed, there were definite complications in ten, viz., stone in the common duct in four; subacute pancreatitis in four; one case of abscess around the gallbladder; one case of rupture of an acutely inflamed gallbladder. In the other cases, drainage rather than excision was performed for various reasons, such as the age and condition of the patient. Of the seventy-two patients who survived, thirty were traced after from three to seven years; of these, twenty were cholecystectomies, ten only were cholecystostomies. In the excision case the results were very good in sixteen and good in four. In the drainage cases the results were very good in five, good in four and poor in one case.

Nature of Shock.—McDonagh claims that shock, anaphylaxis, allergy, hypersensitiveness, and nitritoid crisis are all words for the one phenomenon, which is an upset of the normal hydrogen ion concentration. Asthma, urticaria pigmentosa, and various chronic dermatoses may be symptoms of chronic shock.

Seale Hayne Neurological Studies, London

April, 1920, **1**, No. 6

Seeing, Looking and Hysterical Blindness. A. F. Hurst and A. W. Gill.—p. 297.
After-treatment of War Neuroses; Question of Pensions. R. G. Gordon.—p. 308.
General Paresis, Value of Treatment. J. W. Moore.—p. 313.
Consciousness in Relation to Neuroses. R. G. Gordon.—p. 318.
Somnabulistic States. R. G. Gordon.—p. 322.
Hysterical Pain and Its Treatment. S. H. Wilkinson.—p. 327.
Stammering. J. F. Venables.—p. 331.

South African Medical Record, Cape Town

July 24, 1920, **18**, No. 14

Schistosomes of Man and Beast in Natal. F. G. Cawston.—p. 264.
Problem of Impotence. A. M. Moll.—p. 264.
Causation and Treatment of Irritable Cough. C. E. Jones-Phillipson.—p. 267.
Thyroid Extract in Angioneurotic Edema. F. N. Holden.—p. 269.

Archives Médicales Belges, Liége

April, 1920, **73**, No. 4

*Cancer of the Pancreas. Koetlitz.—p. 291.
First Case of Beriberi in Spain. F. Fernández Martinez.—p. 299.
The Military Medical Service in Russia, 1915-1918. V. Brassine.—p. 306.

Cancer of the Pancreas.—In the case reported there had not been any jaundice or steatorrhea, and the tumor and pains had seemed to point to the stomach, except for the intensity of the pains, independent of the meals and worse at night. Laparotomy showed the stomach intact and an inoperable cancer in the head of the pancreas, extending back of the stomach and pressing on the pylorus.

Bulletin Médical, Paris

Aug. 7, 1920, **34**, No. 39

Indications for and Results of Artificial Pneumothorax. M. Léon-Kindberg.—p. 703.

Aug. 14, 1920, **34**, No. 40

*Retention of Air in the Stomach: Aerogastry. F. Ramond.—p. 721.
Confusional Mental States of Puerperal Origin. R. Dupouy.—p. 722.
Abortive Treatment of Gonorrhea. R. Le Fur.—p. 725.
Diagnosis and Treatment of Appendicitis in Children. H. Stévenin.—p. 728.

Blocked Aerophagy.—Ramond applies this term to the retention of swallowed air in the stomach, from a valvelike closure of the cardia or from relaxation of the diaphragm allowing the stomach to protrude upward. There is no eructation, but the discomfort from the distention of the stomach and the displacement of the heart may cause symptoms liable to be mistaken for heart disease or even angina pectoris. Charcoal has been recommended to absorb the gas but is of little use. The air can be expelled sometimes by drinking a cup of tepid mineral water and flexing the trunk, while pressing on the lower abdomen, bending as far forward as possible with a very deep inspiration. The combined effect is to force the air into the duodenum. Or a slender duodenal tube can be introduced into the stomach, fasting, or four or five hours after a meal. He has one patient who uses a small flexible tube of the kind from time to time, and has resumed normal, active life when before that his condition had been pitiable from the dyspnea and recurring angina pectoris. The anatomic conditions seem to be returning to normal.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 2, 1920, **44**, No. 24

*Schick Reaction in Postdiphtheric Paralysis. De Lavergne and Zoeller.—p. 954.
*Transient Tobacco Amaurosis. P. Pagniez.—p. 956.
*Gangrene of Lung; Recovery under Induced Pneumothorax. J. Loiseleur.—p. 958.
Spinal Fluid in Epidemic Encephalitis. P. Boveri.—p. 960.
*Colon Bacillus Septicemia. Widal and others.—p. 963.
*Auscultation with Friction of Chest. Crouzon and Béhagne.—p. 976.

Schick Reaction in Postdiphtheria Paralysis.—The four cases related show that it is impossible to base a retrospective diagnosis on the findings of the Schick diphtherin test, as it may be negative even with pronounced diphtheric paralysis. It is superfluous to give antitoxin for sequels of diphtheria when there is a negative Schick reaction.

Recurring Unilateral Amaurosis Probably from Tobacco Poisoning.—The case was peculiar in that the color of the iris changed likewise during the weeks of the amblyopia. For several years the young man had had mild albuminuria, not above 0.5 per cent. Blood pressure was normal. Vascular spasm in the eye would explain the amblyopia and the modification in the color of the iris, which became much yellower. He is a great smoker, and recently had an attack of angina pectoris of the tobacco-spasm type described by Huchard. In the discussion that followed, Laubry stated that he had seen with his own eyes the onset of the spasm of the retina responsible for the transient amaurosis in a case of lead poisoning. He has recently had a patient whose attacks of intermittent claudication did not return after the young man gave up smoking. The spasms in these cases are like those responsible for extrasystoles, suggesting angina pectoris, from abuse of tobacco.

Gangrene of Lung Cured by Artificial Pneumothorax.—Loiseleur reports the prompt and complete cure of post-influenzal pulmonary gangrene in a woman of 27 when artificial pneumothorax was induced, three months after the first symptoms.

Colon Bacillus Septicemia.—The four cases described by Widal and his co-workers confirm the great variety of clinical pictures for which colon bacillus septicemia may be responsible. The colon bacilli lingered in the blood even after defervescence for a time. The septicemia followed gastro-

intestinal derangement or childbirth, and there was jaundice in two of the cases.

Auscultation While Chest Wall is Rubbed.—Crouzon and Béhague comment on the instructive findings when the thumb or finger is drawn along the skin of the chest parallel to the clavicle or first rib; the resulting vibration is stronger when the rubbing is done with the bone for the background. They found that the sound from the rubbing was much less distinct when there was an effusion in the pleura, while the sound was exaggerated in cases of congestion of the pleura and lung, incipient infiltration, and bronchopneumonia, compared with symmetrical points on the other side. The sound is less distinct when an infiltration is developing into a cavity containing a fluid, and also in apical sclerosis, while the auscultation findings are magnified when a cavity is superficial or free from contents, and also in partial pneumothorax.

Encéphale, Paris

July 10, 1920, **15**, No. 7

Necropsy Findings in Case of Paralytic Myasthenia. H. Claude and R. Porak.—p. 425.
Manometer Compressor for the Eyeball to Induce Oculocardiac Reflex. J. Roubinovitch.—p. 437.
Mental Disturbances with Epidemic Encephalitis. Hesnard.—p. 443.
*Treatment of Epilepsy. G. Maillard.—p. 455.

Treatment of Epilepsy.—This society report states that Maillard described sixteen cases of epilepsy in which systematic treatment with phenylethylbarbituric acid (luminal) was followed by improvement far surpassing any he had witnessed under other measures. He states that the results were "réellement merveilleux." In the discussion that followed, de Fursac cited Ducosté's experience with the drug (dose not over 0.15 gm.). The radical arrest of the seizures was accompanied in some of his patients with certain mental disturbances, violent, impulsive acts and even delirium. Maillard noted the same tendency in some, but it was mild and transient. Laignel-Lavastine reported a case in which the drug has been taken for four years, and the formerly violent and frequent seizures have almost completely disappeared, but vertigo and spasms are more frequent than before. Hartenberg's two patients have taken the drug for six or seven years, and have no further seizures but have become so irritable and irascible that he says it is a question whether they have been really benefited. Claude's four patients have taken the drug for several years and have no further seizures or very slight ones. In one the seizures had been extremely violent, unmodified by bromids and decompressive craniectomy. Maillard's dose was from 0.2 to 0.4 gm. per day for the course. His experience dates only from November, 1919, but he says that it justifies the highest hopes. In one case he increased the dose for two or three days to 0.6 gm. He gives half in the morning and half in the evening, with a hot drink.

Journal de Chirurgie, Paris

1920, **16**, No. 4

Treatment of Wounds of Vertebral Artery. P. Hallopeau and R. Gouverneur.—p. 369.
Surgical Treatment of Heart Wounds. H. Costantini.—p. 383.
*Reconstruction of Joint Ligaments. D. de Frenelle.—p. 399.

Reconstruction of Ligaments by Grafts and Transplantation of Tendons.—De Frenelle says that the best way of rebuilding articular ligaments is by grafting and transplantation of tendons. Animal tendons should be used, it being then possible to choose one of the proper length, size and resistance. Kangaroo, reindeer and calf tendons are very good, their resorption being very slow, thus giving time to the organism to build the autogenous tendon which is needed. In case of marked luxation, a graft of strong animal tendon is indispensable, traversing both epiphyses and thus buckling the joint ends together. Transplantation of the periarticular tendons is excellent to supplement the grafting. The typical operation for this, in a case of paralytic luxation of the knee described, consisted in fastening the tibia to the outer condyle with two new ligaments. One in front, slit off from the fascia lata, was fastened to the third adductor, and one behind, slit from the semitendinosus, was fastened to the posterior crucial ligament.

Presse Médicale, Paris

Aug. 7, 1920, **28**, No. 55

Opening Lecture of Experimental Medicine Course. F. Arloing.—p. 533.
Pulmonary Tuberculosis plus Primary Cancer; Two Cases. M. Letulle.—p. 537.
*Occipital and Trigeminal Neuralgia. W. Janowski—p. 537.

Cure of Neuralgia of the Head.—Janowski remarks that occipital neuralgia may escape recognition for months or years as no one thinks of palpating the occipital nerves as they emerge from the skull. Moderate pressure at these points elicits pain which may spread to temples and vertex with occipital neuralgia. With trigeminal neuralgia, pain is elicited by pressure on the nerve in the supra-orbital sulcus or in the suborbital groove where the nerve emerges on the surface of the upper jaw. The patient complains only of an ordinary headache, and neuralgia is not suggested. He encountered over 200 cases of the kind in Russia during the war, and has a record of almost 500 cases in less than thirty years. Crushing the nerve as it emerges has proved an infallible cure for these primary neuralgias. The masseur presses the patient's head against his own chest, holding it firmly with the left arm, while the painful point is compressed with the right forefinger, exerting strong pressure for a half or a whole second, repeating this ten times in succession. An interval of a second is allowed between each pressure, but the finger is held on the spot all the time. During the first four to six days this procedure causes extreme pain. A second series is begun after a two day interval; the number of series necessary to crush the nerve and cure the neuralgia varies from case to case. Four series were enough in some cases; others of up to twenty or more years' standing required six series. Recent cases yielded in ten to twelve days. Although so effectual Janowski has never seen this old method applied by others, although in some of his cases the periodic attacks for five, ten, twenty, up to forty-two years of this pseudomigraine had often been agonizing.

Aug. 11, 1920, **28**, No. 56

*Cartilage Grafts. P. Mauclaire.—p. 545.
*Inflamed Axillary Glands with Mammary Cancer. R. Bonneau.—p. 547.

Cartilage Grafts.—Mauclaire traces back to 1852 the history of cartilage implants, and reviews the recent work in this line. Autografts of costal, tracheal, laryngeal and ear cartilage in soft parts may prove successful, but as a rule the graft becomes transformed into fibrous tissue or is absorbed or encysted. In heterologous tissue, success is less frequent, and heteroplastic implants are always resorbed. Costal cartilage grafted on bone tissue seems to be successful; it is an active graft on almost homologous tissue, and it functions. The epiphyseal cartilage reimplanted in similar tissue dies in the center, and although the periphery lives, yet it is of no practical utility. The hope of using cartilage from animals has had to be abandoned for the present. Diarthrodial cartilage grafts may succeed if their nourishing synovial membrane is left on them and a little bone tissue.

Inflammatory Process in Glands Near Nonulcerating Cancers.—Bonneau's experience indicates that when a mammary cancer is not suppurating, the glands in the axilla may be the seat of merely inflammatory processes, and not invaded by the cancer. This encourages to extend the limits of operability. The surgeon is unable to differentiate the process in the gland at the operation, but examination of the excised glands later reveals the absence of malignant disease in the glands. Fage's thesis (1909) stated that the lymphoid tissue in the axilla with a closed epithelioma of the mamma frequently showed merely ordinary reactions, without cancerous involvement. This fact explains why excision of the gland mass in the axilla sometimes is so easy, while in other cases it is difficult and tedious.

Aug. 14, 1920, **28**, No. 57

*Threshold for Excretion of Glucose by the Kidneys. A. Chabanier and M. Lebert.—p. 553.
Danger with Inhalation of Fumes of Iodin. L. Cheinisse.—p. 556.

Renal Threshold of Glucose Excretion.—Chabanier and Lebert give a curve showing the threshold for glucose and the glycemia, the averages from 400 tests. They also give the exact figures in a typical series from 100 normal subjects.

In the normal, the threshold is well below 3:1,000; the figure is generally lower than that of the glycemia, but very close to it. The threshold rises and falls with the glycemia but does not parallel it, not climbing with the glycemia. In diabetics, the glycemia has to be higher than in the normal or intense acetonemia is liable to develop, so that the glycemia in diabetics seems to be in one sense a compensatory mechanism. In both the normal and the diabetic with stable metabolism, after ingestion of glucose both the glycemia and the exhalation of carbon dioxid increase. The sugar content of the blood thus seems to be one of the factors regulating the consumption of glucose by the organism. The glycemia in the diabetic has to be increased much more than in the normal subject to accomplish the same task, and the renal threshold rises with it. In the normal the threshold fluctuates readily. When the threshold follows only sluggishly the variations in the glycemia, we have the clinical picture of what is called renal diabetes. This inertia of the threshold is observed also in true diabetes. It is a purely renal phenomenon independent of the normal or abnormal metabolism of carbohydrates. The glucose threshold fluctuates independently of the thresholds of the other substances eliminated by the kidneys. Certain substances modify it, notably phlorizin, by reducing it directly, and suprarenal and pituitary extracts, indirectly, by modifying the glycemia. In conclusion they emphasize that the glucose threshold being essentially movable with the glycemia, and not being a function of the derangement in the utilization of sugars which constitutes diabetes, it is no criterion of the existence or the gravity of the diabetes in any case.

Progrès Médical, Paris

July 17, 1920, **35**, No. 29

*Tolerance for Arsphenamin. L. Lortat-Jacob.—p. 313.
"Psycholepsy." Laignel-Lavastine.—p. 315.
Mineral Waters for Clearing Out the Intestines. J. Baumann.—p. 317.
Comminutive Fractures of Sacrum Without Nervous Lesion. L. Moreau.—p. 318.
Magnesium Oxid. G. Faroy.—p. 319.

Preexisting Factors Modifying Reaction to Arsphenamin.—Lortat-Jacob warns that persons suffering from abnormal functioning of the thyroid are peculiarly liable to display intolerance for arsphenamin treatment. He has frequently noted that attacks of diarrhea in apparently healthy persons were soon followed by tremor and restless irritability; then came acceleration of the pulse and palpitations and—perhaps not until after a long interval—the thyroid began to enlarge and finally exophthalmos completed the picture of exophthalmic goiter. Consequently he warns to be wary with a patient who has been having attacks of diarrhea without apparent cause. When the febrile reaction to the arsphenamin does not develop until the second day or later, it indicates intolerance, and calls for measures to reduce it. If the reaction includes symptoms suggesting suprarenal and thyroid derangement, especially attacks of diarrhea and vasomotor disturbance, besides the high temperature, he advises suspending the arsphenamin and treating the thyroid and suprarenals, as their participation in the accidents imputable to the arsphenamin may be of serious import.

July 31, 1920, **35**, No. 31

Severe Dyspepsias. F. Ramond.—p. 335.
Roentgen-Ray Treatment of Fibromas. Delbet.—p. 337.
*Cure of Oxyuriasis with Bismuth Carbonate. M. Loeper.—p. 339.

Aug. 7, 1920, **35**, No. 32

Paradoxic Increase of Albumin Content of Blood Serum with Cancer. M. Loeper and J. Tonnet.—p. 345.
History of Grafts of Glandular Organs. P. Mauclaire.—p. 345.

Cure of Oxyuriasis Under Bismuth Carbonate.—Loeper recommended bismuth carbonate to two patients with gastric and duodenal ulcer, and was surprised to learn that the drug had had an unanticipated effect in completely freeing them of pinworms, which had resisted all previous measures. He has since prescribed bismuth carbonate regularly in treatment of oxyuriasis, and has found it effectual, even in families where parents and children were all affected. In four or five days the parasites and ova disappear from the stools, or a second or third course may be required. He gives adults on two successive days 10 gm.; children of 7, 4 gm., and under this age, only 2 or 3 gm.

Riforma Medica, Naples

July 10, 1920, **36**, No. 28

*Roentgenotherapy in Asthma, etc. M. Ascoli and A. Fagiuoli.—p. 622.
*Pregnancy Pernicious Anemia. E. Signorelli.—p. 624.
Glycuronuria. A. Azzi.—p. 629.

Roentgen-Ray Treatment of the Pituitary in Asthma.—Ascoli and Fagiuoli have been treating certain sluggish endocrine glands with small doses of roentgen rays, hoping to stimulate the glands to normal functioning. Radiotherapy as usually applied is to destroy and annul functioning, but their aim was to promote deficient functioning. A boy of 15 with dystrophia adiposogenitalis was given pituitary and testicle extract treatment for several months, and then the pituitary gland was given four roentgen-ray exposures at four week intervals. The results were most gratifying, as also in a case of scleroderma in which both pituitary and thyroid were rayed, and in a case of exophthalmic goiter given two exposures of the thymus. In the latter case the pulse dropped from 120 to 100, the circumference of the neck from 34 to 31.1 cm. and the patient felt much better generally. Tentative treatment of various endocrine organs in a case of angioneurotic edema, in three of diabetes and in a eunuchoid man of 26 failed to display any benefit. Probably some other organ than the one treated was responsible for the disturbances. In five cases of asthma, however, exposures of the pituitary were followed by pronounced improvement. In four of the cases there have been no, or very slight, attacks since; in the fifth case instead of a daily severe attack there are only two or three a week at most, and they are mild. About four exposures were made at weekly intervals. The crossfire was through the brow and temples to a total exposure of twelve minutes with a 2 mm. aluminum filter, 3.5 milliamperes, focal distance about 45 cm., and spark of 18-20 cm. In conclusion Ascoli and Fagiuoli suggest that this mild action of the roentgen rays may prove useful in research on the normal function of the various endocrine glands, and to enhance the action of those which seem to prevent or check malignant disease. Four German clinicians in the last few months have reported similar radiotherapy of endocrine glands: Stettner, the pituitary, in cases of arrested development of ossification centers; Stephan, the spleen, to promote coagulation; Fränkel, recommending small doses as a functional stimulant for endocrine deficiency, and Klewitz exposed the thorax in asthma, without benefit.

Pregnancy Pernicious Anemia.—Signorelli adds another to fifty-six cases he has found on record in which pernicious anemia in a pregnant woman subsided after induced or spontaneous delivery, and has never returned, the intervals in the various cases to date up to thirty years.

Revista Médica del Uruguay, Montevideo

May, 1920, **23**, No. 5

Interpretation of Certain Symptoms of Influenza. F. Paladino.—p. 209. Cont'n.
Present Status of Knowledge of Cancer. J. Servetti Larraya.—p. 215.

Siglo Médico, Madrid

May 22, 1920, **67**, No. 3467

*Ligation of Splenic Artery. J. A. Cejudo.—p. 381.
Notes on Medical History in France. Albiñana.—p. 393.

Spleen Sloughed Off After Ligation of Artery.—Cejudo relates that he has apparently cured completely a patient with Banti's disease by ligating the splenic artery to induce atrophy of the spleen in the woman of 39. The symptoms had been developing for several years, with intense cachexia, jaundice and anemia and the spleen was enormously large. Splenectomy was found impossible on account of adhesions, and Cejudo merely ligated the splenic artery at two points. An abscess developed, and pus was evacuated daily from the flank during the fourth month. With it came scraps of necrotic spleen tissue until finally the entire spleen thus sloughed off, with floods of pus, under Carrel treatment. By the fifth month the cure seemed complete, with 4,500,000 red and 5,000 white corpuscles instead of the 3,500,000 and 30,000 at the first operation.

June 12, 1920, 67, No. 3470

*Medical Treatment of Ileus. E. Escomel (Peru).—p. 433.
Physiology of Meditation and Dreams. E. Luengo.—p. 435.

Medical Treatment of Intestinal Obstruction.—Escomel did not dare to operate on an incarcerated hernia in a woman of 84 with valvular disease. As a last resort, he had her swallow a tablespoonful of liquid petrolatum every half hour. She began this at 8 a. m. and at 2 p. m., the hernia spontaneously subsided. He has since applied this treatment in fifteen other cases, ordering the spoonful of odorless liquid petrolatum every ten or fifteen minutes, supplemented in some cases with an intramuscular injection of pituitary extract, and raising the foot of the bed to allow the intestine to slide down against the diaphragm and thus relieve the pressure on the hernia, and correct torsion or invagination. Gentle taxis after four or five hours of this may correct conditions; if not, irreducible adhesions or torsion or invagination are probably responsible. He advises the petrolatum at once in all cases of intestinal obstruction as it does no harm, and may render an operation unnecessary.

Deutsche medizinische Wochenschrift, Berlin

June 17, 1920, 46, No. 25

Eye Disease Associated with Influenza. E. Fraenkel.—p. 673.
Drug Stimulation of Blood Production. Heinz.—p. 674.
Adulteration of Drugs. H. Fühner.—p. 675.
*Model for Instruction in Pathology of Pelvis. Lichtenstein.—p. 676.
*Fever Treatment of Psychoses. R. Weichbrodt.—p. 678.
Treatment by Suggestion of Neurotic Menstrual and Genital Disturbances. A. H. Hübner.—p. 679.
Experiences with Silver Arsphenamin. K. Wiener.—p. 680.
Diagnosis of Amebic Dysentery. Hage.—p. 682.
*Pathology of Blood Coagulation. R. Stephan.—p. 684.
*Stenosis of Small Intestine. F. Frisch.—p. 686.
Injections of Turpentine in Surgical Tuberculosis. E. Glass.—p. 687.
Relative Avidity of Diphtheria Antitoxins. R. Kraus (Buenos Aires).—p. 687. Reply. W. Kolle and H. Schlossberger.—p. 688.
Etiology and Pathogenesis of Sciatica. F. Lindstedt.—p. 688.
*Diagnostic Significance of Hematuria. Sfakianakis (Athens).—p. 690.
Unscrupulous Methods of Marketing New Remedies. H. Zernik.—p. 691.
Rhinolaryngologic Hints for General Practitioners. Finder.—p. 691.

Teaching Phantom for Pathology of Pelvis.—Lichtenstein has been using a model of the pelvis in instructing advanced students in the diagnosis of pelvic conditions, especially in the pregnant, and has found it very useful. He does not approve of the practice of students making examinations in pregnancy until they have had a course of training on a phantom. Those who have had such preliminary instruction seem to learn much more rapidly and accurately when the opportunity is offered later to examine the living form. He suggests that if midwives could be induced to take such a preliminary course, it would enable them to recognize a contracted pelvis as the cause of many complications of childbirth, and thus know when to call in an obstetrician before it is too late to save the child.

Fever Treatment of Mental and Nervous Disease.—Weichbrodt refers to the published instances of improvement in general paresis, etc., under the influence of an intercurrent febrile infection, and relates systematic attempts of the kind at the psychiatric clinic at Frankfort. He used spirochetes of relapsing fever as the most convenient and least harmful means of inducing a brief, high fever. The experiences are too recent for a final decision, but the impression to date is that the benefit is not so pronounced as when malarial fever is induced. He has applied the latter method also, but abandoned it as the patients' general health suffered too much from the malarial infection.

Pathologic Changes in Blood Affecting Coagulation.—Stephan has been examining a large amount of clinical material to find some means for estimating the pathologic changes occurring in the blood in various diseases as affecting the normal coagulation process. He describes in detail the simple method that he has worked out, which he thinks marks a distinct advance in the study of the pathology of blood coagulation. The coagulation phenomena of a given blood specimen are compared with the manifestations of normal blood; that is, he establishes, first, the action of the active and inactivated blood serum and blood plasma of the given blood specimen and compares the results with the corresponding findings with normal blood, and, second, he studies the effect of normal blood serum and blood plasma of known value on the coagulation of the given blood specimen. His method is based on the assumption that the coagulation of all normal blood specimens occurs in from twenty-eight to thirty-three minutes. All methods showing a normal coagulation time of less than twenty minutes Stephan found entirely unusable. He follows, in determining the coagulation time the method commended by Fonio in which four watch crystals in the moist chamber are used. His extensive research has confirmed that the coagulation process in normal blood manifests extraordinary constancy and precision. In fact, he declares, as an index of immune reactions, it is as practical and reliable as the hemolysis index, and far simpler.

Roentgenology and Clinical Aspects of Stenosis of Small Intestine.—Frisch reports two cases to show that in the presence of a residue in the stomach five hours after ingestion of a test meal, and no other positive findings in the stomach and duodenum, low stenosis of the small intestine from multiple adhesions should be suspected.

Diagnostic Significance of Hematuria.—Sfakianakis reports three cases to show some of the diagnostic problems that arise in connection with hematuria. In one case it seemed at first that a papilloma near the left ureter mouth, presenting necrotic spots, was the immediate cause of the hematuria, but the indigocarmin test disclosed that the blood came from the left kidney. The papilloma itself was not bleeding. Operation on the kidney revealed a far advanced carcinoma. The patient recovered rapidly after the operation, and the hematuria did not return. The papilloma was not treated further. A benign papilloma, therefore, should not be operated on unless it can be shown to be bleeding or to be a hindrance in micturition.

July 22, 1920, 46, No. 30

Peculiar Type of Cardiac Arrhythmia. Gil-Casares (Spain).—p. 821.
*Effect of Implantation of Testes. R. Mühsam.—p. 823.
Origin of Loose, Solitary Bodies in Knee Joint. Axhausen.—p. 825.
Observations on Children with Dry Skin. P. Karger.—p. 827.
Recent Types of Serum Culture Mediums. E. Czaplewski.—p. 828.
Action of Friedmann Bacillus as Antigen. F. Lust.—p. 829.
Technic for Injection of Silver Arsphenamin. L. Dub.—p. 831.
Colloidal Silver in Typhus. H. E. Kersten.—p. 831.
*Some Peculiar Aspects of Herpes Zoster. A. Stern.—p. 832.
Otologic Hints for General Practitioners G. Brühl.—p. 833.

Testicle Implants.—Summarized in the Berlin Letter, p. 755.

Some Peculiar Aspects of Herpes Zoster.—Stern says that while herpes zoster does not ordinarily recur, in certain rare cases there are periodic recurrences. It is in such cases often associated with facial paralysis and paralysis of other motor nerves, as the expression of a general infectious disease. He describes an atypical case of the kind. In some cases the general symptoms, swelling of glands and paralysis of motor nerves, occur even without the characteristic skin eruption of herpes zoster.

Münchener medizinische Wochenschrift, Munich

May 28, 1920, 67, No. 22

Epidemiologic and Diagnostic Investigations in Pulmonary Tuberculosis. H. Curschmann.—p. 623.
Rhythmic Phenomena in Eye Disease. W. Lohmann.—p. 625.
Eye Symptoms in Lethargic Encephalitis. R. Cords.—p. 627.
The Internal Ear in Lethargic Encephalitis. K. Grahe.—p. 629.
Late Results of Encephalitis after Influenza. Speidel.—p. 630.
*Source of Error in Examination of Dark and Light Adaptation. E. Grafe.—p. 634.
*Urochromogen Reaction in Surgical Tuberculosis. Klare.—p. 635.
Etiology and Diagnosis of Acute Bilateral Blindness. H. Hensen.—p. 637. Begun in No. 21, p. 601.

Source of Error in Estimation of Adaptation to Light and Darkness.—Grafe explains that sensitiveness to light is modified by the diameter of the pupil, but that this point has not been sufficiently heeded in studying the power for dark adaptation. It must have often happened that disturbance in adaptation was ascribed to other causes when in reality the pupil was contracted to a degree which interfered with the response. The practical conclusion of the research reported is that all adaptation findings in conditions which are associated with disturbances of the pupil, especially in tabes, must be evaluated with great caution. In such cases the actual picture of the dark adaptation of the retina can be secured only with artificially dilated pupils. In hemeralopia, asso-

cated with miosis, it was found that atropin had a certain therapeutic value owing to its dilating effect on the pupils.

Significance of the Urochromogen Reaction for the Prognosis of Surgical Tuberculosis.—Klare has been applying the urochromogen test in all his cases of surgical tuberculosis for the last two years, and reports that what Weiss states in regard to the significance of urochromogen in pulmonary tuberculosis holds good in the main for surgical tuberculosis: The continual demonstration of urochromogen is to be regarded as indicating a very unfavorable prognosis, and while patients presenting a transitory urochromogen reaction may live for several years they have no prospects of recovery. Thirty of his cases (18 soldiers and 12 children) gave a positive urochromogen reaction. Of these 18 soldiers, 12 died within a year; the other 6 have not improved. Of the 12 children, 4 died within a year; as regards the other 8, the condition of some is unchanged and of others worse. In only one case has there been any improvement. In the progressing cases, the intensity of the urochromogen reaction has increased. He declares that a persisting positive urochromogen reaction with a tuberculous joint process is sufficient indication for amputation.

June 4, 1920, 67, No. 23

*Roentgen Differentiation of Tumors. L. Seitz and H. Wintz.—p. 653.
*Reflex Relaxation of Abdominal Muscles. O. Bruns.—p. 654.
Effect of Seasons on Cutaneous Disease. Bettmann.—p. 656.
*Eczema and the Vegetative Nervous System. E. Moro.—p. 657.
Open and "Closed" Pulmonary Tuberculosis. F. Hamburger.—p. 659.
Encephalitis Epidemica Choreatica. O. Oehmig.—p. 660.
Neurocerebral Forms of Influenza. Heim.—p. 663.
*Recent Progress in Pneumoperitoneum Technic. R. Decker.—p. 664.
Hereditary Aspects of Dementia Praecox. W. Weinberg.—p. 667.
Untoward Effects of Horse Serum. H. Wisner.—p. 668.

Roentgen Irradiation as a Means of Differential Diagnosis of Tumors.—Seitz and Wintz call attention to the differential diagnostic value of the varying sensibility of tumors to the roentgen ray. A myoma suspected of sarcomatous degeneration should not be irradiated with the ordinary myoma dose, equivalent to 34 per cent. of the skin erythema unit dose, but should receive the sarcoma dosage of from 60 to 70 per cent. If the tumor begins to retrogress in a few days after irradiation is begun, and if retrogression has become marked within two weeks, and is more or less complete in four or five weeks, the probability is that the tumor is a sarcoma. But if the retrogression does not begin until three or four months after irradiation is begun, if it proceeds slowly and is not complete except after the lapse of one or two years, the tumor is doubtless a myoma. Since the cells of the various malignant neoplasms (being immature, rapidly developing cells) have a greater sensibility to roentgen rays than the fully mature cells of clinically benign tumors, a differential diagnosis can often thereby be reached. Large ovarian and abdominal sarcomas react quickly and markedly to irradiation.

Reflex Relaxation of the Abdominal Muscles as Food Enters the Digestive Tract.—Bruns has been making investigations on animals under local anesthesia to discover the effect on abdominal pressure exerted by food as it enters and passes through the digestive tract. He reports that the expansion of the stomach and intestine is only possible owing to the simultaneous relaxation of the abdominal muscles. This reflex loosening of the tension originates in the inner wall of the stomach and extends on through the gastric plexus and the semilunar ganglion to the spinal cord.

Fatal Eczema and Seasonal Hyperexcitability of the Vegetative Nervous System.—Without being able to assign other than empirical reasons for his belief, Moro holds the view and acts accordingly in practice that eczema in infants should not be treated vigorously during the first months of the year. Thoroughgoing external treatment should be reserved for the summer or fall months. He cites fifteen fatal cases in support of his view. Thirteen of the deaths occurred during the three-month period from February 1 to March 31, while only two occurred during the other nine months of the year.

Recent Progress in Pneumoperitoneum Technic.—Decker records the advances made in pneumoperitoneum technic. Roentgenoscopy by this method is especially adapted to demonstrate the presence of abdominal adhesions, for which purpose no other method is quite so good.

Wiener klinische Wochenschrift, Vienna

June 17, 1920, 33, No. 25

Pathogenesis of Influenza. R. Wiesner.—p. 531.
Viscerovasomotor Zones. E. Zak.—p. 535.
Case of Primary Heart Tumor. O. Weltmann.—p. 537.
*Laryngectomy and Retraining of the Voice. H. Stern.—p. 540.
Adulteration of Arsphenamin. L. Arzt.—p. 541.

Retraining Organs of Speech After Laryngectomy.—Stern describes the patience that is required and the difficulties that confront the patient and his teacher when he comes to try to find his voice following laryngectomy. Most of such patients use the stomach as resonator, and it was noted that natural ventriloquists were the most successful in getting renewed control of their organs of speech. It will be some time before all the problems of speech mechanism for such patients will be solved, but much valuable progress has already been made.

Zentralblatt für Chirurgie, Leipzig

July 3, 1920, 47, No. 27

*Round Ligament as Support in Gastroptosis. G. Perthes.—p. 818.
*Treatment of Postoperative Tetany. A. Jenckel.—p. 821.
*Influence of Spleen on Blood Coagulation. A. T. Jovasz.—p. 824.
*Tonic Effects of Regional Anesthesia. F. Hering.—p. 827.

Round Ligament of Liver as Support in Operation for Gastroptosis.—Perthes says that we owe it to Rovsing that the clinical importance of gastroptosis is coming to be better recognized and that more attention is being paid to operations to correct it. Rovsing's operative method, while it has accomplished much in many cases, cannot be regarded as the ideal solution of the problem. We cannot expect that an operation in which broad adhesions are produced artificially along the anterior wall of the stomach, thus depriving this organ of a good part of its normal mobility, will always be without injurious consequences. Believing that a method which would preserve the stomach in its normal form and shape, without such adhesions, was to be preferred, Perthes has of late employed a method which he describes in detail (two illustrations). He suspends it by the round ligament passed lengthwise through the wall of the lesser curvature. The ligament retains its natural connections with the liver, which insures a normal blood supply. The distal end is inserted under the left costal arch in the posterior sheath of the left rectus abdominis and here securely sutured. The operation has been successful in each of the four cases. The oldest case is only four months old but the outlook seems very promising. Roentgenograms before and after the operation show distinctly that the stomach has been raised. The associated symptoms, such as cardialgia, an uncomfortable sense of fullness, vomiting spells and intractable constipation, have been relieved. While Perthes has not as yet used this method in gastroptosis combined with hepatoptosis, he believes it is worth a trial. It is to be assumed that also the liver could be thus raised and retained in normal position.

Treatment of Postoperative Tetany.—Jenckel urges that in postoperative tetany we should not resort to transplantation, the results of which depend on whether there are still remnants of parathyroid tissue present or not, until parathyroid tablets have been prescribed. He cites his case in a woman of 66. She had been operated on in April, 1913, for bilateral goiter. The wound healed by first intention, but in the region of the already closed wound suppuration set in, which lasted until the middle of August. The patient's face showed marked edema and her mental faculties were beginning to be seriously impaired, so that by August she had to give up her business, became unduly silent, somnolent, and disoriented and was confined to her bed. There were also cramps in the extremities. Jenckel was consulted September 2, and he prescribed at first thyroid tablets (as parathyroid tablets could not be secured at once), and later parathyroid tablets, one tablet three times daily, whereupon a striking improvement in the general condition of the patient was noted. The myxedema receded, the mental faculties cleared up and the cramps ceased. Treatment was kept up at home for over a year (two tablets daily), so that the patient entirely recovered and has retained her health for the past six years. However,

a small goiter tumor about the size of a walnut has developed on the left side of the neck but does not occasion any trouble. No nerve symptoms have reappeared.

Surgical Importance of the Influence of the Spleen on Blood Coagulation.—Jurasz refers to Stephan's finding that by irradiation of the spleen with roentgen rays the coagulation time of the blood can be materially shortened and the quantity of coagulative ferment in the blood serum considerably increased. He thinks there are indications that the spleen may be regarded as the central organ with respect to the blood coagulation process. Stephan's discovery opens up far-reaching vistas in practical surgery, not only from a therapeutic standpoint but also as a prophylactic means of reducing bleeding during and after operations. Irradiation of the spleen may prove effective in checking hemorrhage and saving a patient even when blood transfusion, used as a last resort, has failed. Before undertaking prophylactic irradiation, Jurasz recommends that the coagulation time of the patient's blood be determined by Stephan's modification of the Fonio method, by which 20 drops of blood are put in a watch crystal, which is transferred to a covered petri dish. By tipping the dish from time to time the exact moment when coagulation is completed is determined. This coagulation time is then compared with the normal time, which must be determined for each individual laboratory. In Jurasz' laboratory, normal time was from twenty-eight to thirty-two minutes. If the coagulation time of the patient is retarded by as much as four or five minutes, it always indicates some disturbance of the coagulation process, and points to the danger of serious hemorrhage during or following operation. In this case irradiation of the spleen must by all means precede surgical intervention. As to just how long before the operation this irradiation should be given is an important point. Jurasz' experience thus far points to from fifteen to twenty hours preceding the operation as the most favorable time. (Stephan's article is reviewed on p. 904.)

Accidents Following Regional Anesthesia.—Hering reports six cases in which more or less serious accidents, fatal in three instances, followed nerve blocking. With the improvements in technic and increased experience in using the various methods, accidents have become much fewer until, in some quarters, nerve blocking has come to be regarded as an absolutely safe method. In one of his cases (malignant goiter) paravertebral anesthesia by Härtel's method was used. The patient became suddenly unconscious, rolled up her eyes, displayed muscle contractions of the face and stertorous breathing, although the pulse remained good. She recovered quickly at the end of three minutes. In a second case (mild manifestations of exophthalmic goiter) paravertebral anesthesia (Härtel) was also employed. During the injections the patient became suddenly pale, and complained of dizziness and oppression in the heart region. The manifestations improved when the patient was spoken to in an encouraging tone, but complete collapse occurred after the injections were concluded. The patient became livid; the pulse small and accelerated; breathing superficial and irregular, and a heavy sweat appeared. In spite of all measures employed to give relief, the patient did not recover until toward evening. In neither of these cases was there any evidence that a vein had been punctured. In the third case (pleural empyema), rib resection was done under paravertebral anesthesia. Severe collapse occurred after completion of the injections. The patient was extremely pale, and did not respond when spoken to. The pulse was small and very rapid. Breathing was superficial, and sweating profuse. A half hour elapsed before the patient recovered sufficiently so that the operation could be performed. The fourth case was that of a bronchial fistula following gunshot wound of lung. Paravertebral anesthesia by the Kappis method was employed. During the sixth injection there was a sudden collapse and death ensued within a few minutes. Necropsy did not reveal the cause of the collapse. In the fifth case, an empyema fistula, paravertebral anesthesia (Kappis) was used. Severe collapse occurred during the injections. As anesthesia was not complete, it became necessary to give some ether. The patient did not recover from the shock, and died thirty-six hours after the operation. In the sixth case, a tendon sheath phlegmon in a woman of 52, plexus anesthesia by the Kulenkampff method was employed in connection with arm amputation which septic conditions made necessary. Anesthesia was complete and nothing worthy of note occurred during the injections or the operation. The patient felt well during the next three days, but then began to complain of pain in the region of the left breast. Pneumothorax occurred, followed by marked dyspnea and death. Necropsy revealed that puncture of the pleura, followed by tension pneumothorax, was the cause of death.

Zentralblatt für Gynäkologie, Leipzig

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Experimental Investigation of Blood Transfusion. L. Nürnberger.—p. 720.
Priority for Own Blood Transfusion. F. Burgkhardt.—p. 724.
Restrictions on Men as Obstetricians from the Earliest Times to the End of the Middle Ages. P. Diepgen.—p. 725.

Zentralblatt für innere Medizin, Leipzig

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Bigeminal Pulse. F. Warkentin.—p. 473.

Mededeelingen v. d. Burg. Geneesk. Dienst, Java

1919, No. 9. Parallel Dutch-English Edition.

The Spleen Index in Malaria. W. Schüffner.—p. 1.
Blood Picture in Malarial Countries. Idem.—p. 27.
Development of Malaria Parasites in Certain Mosquitoes. N. H. Swellengrebel.—p. 53.
*Quinin in Prophylaxis among the Natives. J. T. Terburgh.—p. 72.
Larvae of Certain Netherlands Indian Anophelines. N. H. Swellengrebel and J. M. H. S. de Graaf.—p. 119.

Quinin Treatment of Malaria in Java Natives.—Terburgh gave quinin treatment to 11,677 inhabitants of several native villages in 1908 and to 10,184 in 1909. The dose was 0.6 gm. on two consecutive days each week. Of 11,080 persons of thirty villages who had not been given the quinin or had been discharged as cured, reexamination at the end of the year showed that 45 per cent. presented abnormally large spleens. In other villages 85.4 per cent. presented the spleen tumor at the end of the year notwithstanding the intensive quinin treatment. The experiences were thus an experiment on a huge scale of the effects of quinin treatment on about half of the inhabitants of populous villages. The impression was favorable, but the opposition on the part of the authorities (not the local authorities), to coercion, and the fact that provision had not been made to treat at once the acute cases, interfered with the continuance of the work. The results were much superior to those reported by the Sergents with 2,130 cases, with reexamination of 575.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 26, 1920, 1, No. 26

Anthropologic Data from Amsterdam Children. K. H. Bouman.—p. 2374.
To Reduce Infant Mortality. J. G. A. Honig.—p. 2383.
Case of Anthrax from Shaving Brush. L. Bouwmeester.—p. 2395.

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*Medical Topics in Netherlands Engravings. G. van Rijnberk.—p. 9.
Cause and Treatment of Cystitis in Women. E. Deddes.—p. 42.
Blood Transfusion. T. S. van Ravenswaaij.—p. 47.
Case of Echinococcus Disease of the Lung. W. H. van der Tak.—p. 53.

Medical Subjects in Netherlands Engravings.—Van Rijnberk reproduces thirty-five old engravings portraying physicians or medical subjects. They date from the sixteenth to the eighteenth century, and contain many new and interesting reproductions, as also several of the sets of four pictures showing the doctor as a savior, then as an ordinary man and then as a devil as the patient passes from gratitude to grumbling about the fee. One print shows on the left a physician guiding a happy family through sunshine, fruits and blossoms, while on the right side is an unfortunate family pelted with rain and hailstones and weak with disease, their fruit trees bare all because they have no qualified physician to guide them. In nearly all the prints of the sixteenth and seventeenth centuries the physician is holding a flask of urine up to the light. The latest one in the series represents a physician in the torture chamber of the Inquisition, where he is called to watch over the victims so that the tortures can stop short of killing them.